

VOLUME IX
NUMBER 7

WESTERN INDUSTRY



• The West has one-third of the nation's aluminum production. For details of illustration, see Page 5.

Twenty-five Cents



VICTOR



Some jobs are done best by the electric arc and others by the welding torch...but the universal tool for the preparation of iron and steel is the cutting torch.

VICTOR Cutting Torches offer a great many proved advantages, among which are their outstanding ability to safely withstand the hard usage and occasional abuse of speedy war production.

VICTOR EQUIPMENT COMPANY
844 FOLSOM STREET • SAN FRANCISCO 7, CALIF.

-Photograph by courtesy of Marinship Corporation, Sausalito, California

July

DESIGN FOR BETTER LIGHTING

ALL-STEEL RACEWAY, reinforced for greater strength.

EXTERNALLY-MOUNTED BALLAST, provides 92-99% power factor.

KNOCKOUTS FOR CONDUITS ($\frac{1}{2}$ " and $\frac{3}{4}").$

NONMETALLIC REFLECTOR with multi-coat, polymerized finish.

WING LOCK for simple "twist-of-the-wrist" removal of reflector.

BRACKET for chain suspension.

Westinghouse Industrial Luminaires . . . Easy to Install . . . Easy to Maintain

Westinghouse Industrial Luminaires, now in use in thousands of vital war plants, have won unanimous approval from both industry and electrical contractors. Industry needs and demands these luminaires because they provide highly efficient, glareless illumination . . . with little maintenance and replacement. Electrical contractors, busy with war work, find these attractive luminaires ideal for quick, easy, time-saving installation.

For example, the hood may be suspended any one of four ways. Reflectors are held in position and fastened to the channel by simple twist-turn latches. Line connections may be quickly spliced to fixture leads.

Design and construction of these Westinghouse Industrial Luminaires follow rigid RLM Standards Institute specifications, and are approved by Underwriters' Laboratories.

This industrial luminaire is available for use with two or three 40-watt and two 100-watt Mazda F Lamps, in individual units or continuous strip installations.

Write for This Folder

A new folder describing the 40 and 100 watt Fluorescent Luminaires with non-metallic reflectors is yours on request. Address Westinghouse Electric & Mfg. Co., 1 Montgomery, San Francisco, California, Dept. WI-1.



Westinghouse

Plants in 25 cities . . . Offices everywhere

Lighting Equipment

LIFE LINE

for

SPEED REDUCERS

for Speed Reducers

Service requirements become more severe by reason of heavier loads or other production processes, apply manufacturer's service factors in your load calculations. Don't overload your speed reducer! Watch operating temperatures. Check oil level regularly. Don't let reducer run dry . . . nor oil level rise too high. Use proper lubricants . . . Clean and flush unit periodically. Misaligned shafts impose heavy stresses on bearings and couplings causing bearing failure. Use flexible compensating couplings. Prevent coupling halves from striking. Make needed adjustments promptly. Inspect tightness of bolts . . . amount of bearing wear. Investigate unusual noises or vibrations. Don't let unit get out of alignment!

5. Write for your copy of the Pacific-Western Speed Reducer Service Manual.

Work of America's machinery is rising to a powerful crescendo . . . ever increasing in speed and volume. Today, in factories all over the country geared speed reducers are performing a vital role in the swelling tide of production.

All speed reducers . . . regardless of type or Trade-mark . . . require observance of certain important rules essential for efficient operation and long service life.

It is generally recognized that proper lubricant is the most important single element of your speed reducer's life line. Oil performs two functions. It serves as a heat exchanger as well as a lubricant. A fairly heavy high grade turbine oil is generally required for best results.

Speed Reducers provide most efficient operation when properly mounted on a base plate designed for the specific purpose. Unless the foun-

Mechanical maintenance is practically eliminated in Pacific-Western Speed Reducers, the only requirement being an occasional inspection of the oil level as a safety precaution. This is due principally to the special heat treatment to which all wearing parts are subjected, to the high standards of construction, and the liberal factor of safety used in design wherever parts are subject to slightest strain.

Look to Pacific-Western for Speed Reducers that can take it as well as give it out!

dation or support is sufficiently rigid it will be impossible to maintain proper alignment of shafts . . . vibration creeps in, causing increased gear and bearing wear, noise and trouble with couplings.

A common source of dangerous vibration is in mounting pulleys, sprockets or pinion gears having loose fits on the shaft of speed reducers. When setscrews or keys are set up they will throw the parts off center causing binding or vibration . . . or both. If you mount pulleys, gears or sprockets on an extended speed reducer shaft, install an outboard bearing to relieve the load on reducer bearings.

Proper selection of manufacturer's service factor to determine speed reducer capacity is necessary, if you are to impose heavy overloads at frequent intervals. Most speed reducers are rugged and by following the rules you will avoid injury to bearings and gears.

WESTERN GEAR WORKS

417 NINTH AVENUE SOUTH • SEATTLE, WASH.



PLANTS: SEATTLE, LYNWOOD, VERNON, SAN FRANCISCO



EDITORIAL COMMENT

Surpluses . . . Coddled, Sunk, or Dumped?

THREE things can be done with war surpluses, which are already beginning to appear on the edge of the market and will be a huge mental obstacle for a large part of industry as the pile gets bigger. First, they can be kept under control and gradually sold as the market can absorb them. Second, they can be destroyed, either by being converted into scrap or, as some suggest, towed out to sea and sunk. Third, they can be dumped on the market with hopes for as little disturbance as possible.

Western Industry is in favor of the third solution. Here is our reasoning:

No less a person than Claude Ryan champions the first idea. He would have surplus planes locked up after the war in disused airframe plants, to be fed back into the stream at favorable opportunities, which would mean a certain amount of salvage and some financial recovery to the government. On the other hand, they would always be a cloud on the postwar market, with the lurking danger that they would be released at the wrong moment. The same factors would be present whether they were planes, nuts and bolts, or jeeps. Just the old attempt to postpone the fatal day of reckoning, as we see it.

The theory advanced for the second solution is that by sacrificing the money and man-hours put into the surplus equipment and supplies, the way would be cleared for greater production of new items and employment problems simplified. The idea glitters a bit, but . . . isn't it our old friend "not-raising-hogs" back on the stage again, urging the killing of little pigs and propounding scarcity economics? We think so.

Dumping sounds drastic, as demoralized markets and factories unable to produce because the field is so full of second-hand stuff are pictured. To be sure, keeping the surpluses out of the hands of the Forty Thieves is a justifiable precaution, but the legitimate release of oversupplies can be reasonably expected to put them in the hands of people who to a considerable extent would not be customers for new items. Very conceivably it would widen the market for new equipment, and in any event the absorption would be quicker than the holding-off-the-market method. And after all, the economics of plenty does not mean wastage. The country would be better off if the producers who are waiting for the market to absorb the surplus turned their hands to something else in the meantime.

New Models of Labor Policy

HISTORY records that one or two football games have been won by a defensive team tearing to pieces the offensive of another team. At the risk of losing all our Stanford alumni readers, attention might be called to the fact that thus the greatly publicized Frankie Albert was tumbled from his pinnacle of glory by eleven no-account players from the town of Berkeley.

But it doesn't happen often enough to win any conference titles. So it is an encouraging sign to find that industry in the West—and back East, too, for that matter—is beginning to realize that its labor relations policy has to be on the offense, not merely a desperate defense against continual and increasing union demands. This does not mean an aggressive effort to destroy the protection and logical benefits that the unions have brought their members; on the contrary, it calls for intelligent initiative that will forestall the restrictions and annoyances which are so justly complained against, and at the same time cause employees to feel management has their welfare adequately at heart.

WESTERN INDUSTRY

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OUR COVER PICTURE

* Aluminum today is concerned with war only, but the West is full of people who are giving study to making real use of it after the war. The cover picture shows a 5-stand continuous mill at Alcoa's Trentwood plant, near Spokane. From this mill come sheets more than a city block long to become the skins of bombers and fighters.



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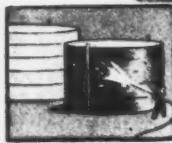
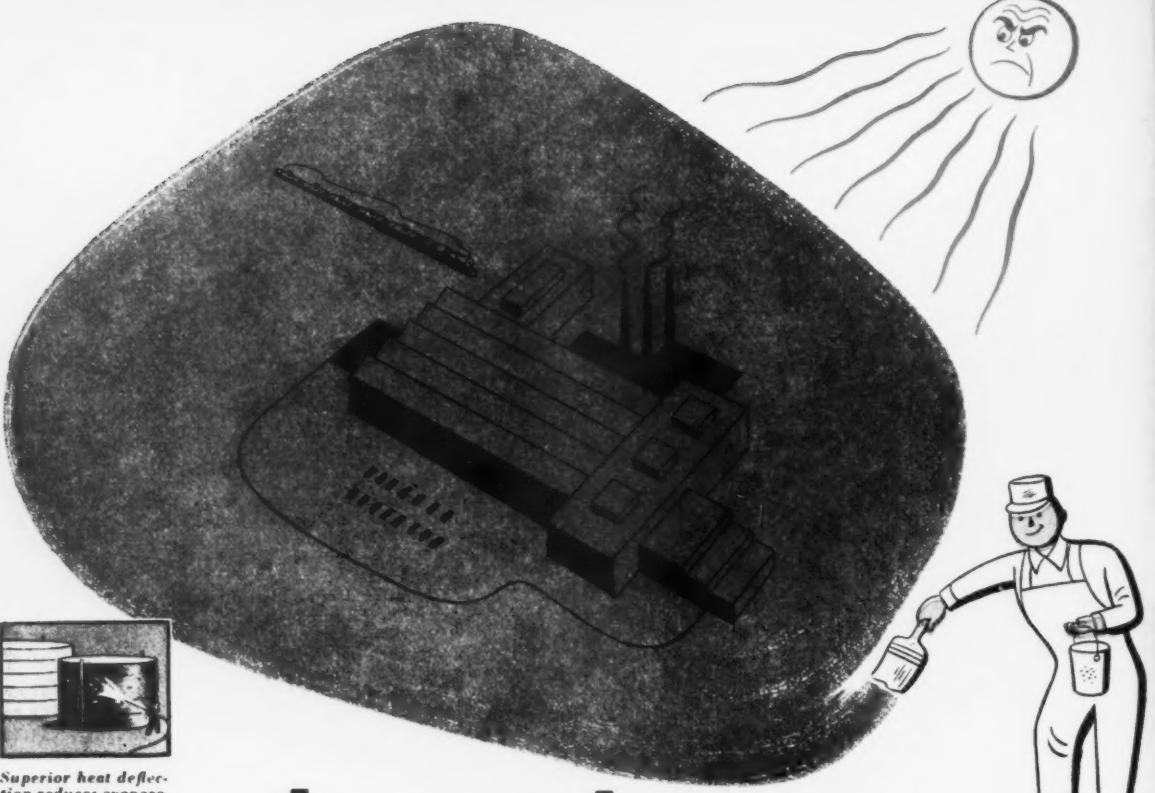
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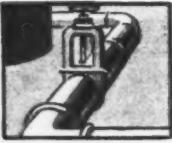
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Wherever reduced interior temperatures and durable surface protection are factors, CALADIUM is setting new high standards in liquid insulating efficiency. Applied to any surface, CALADIUM produces an unequalled, tough flexible protective coating with unequalled heat deflection characteristics.

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Another important feature—CALADIUM is available in a wide variety of decorative colors. It is easily applied by brush or spray and dries quickly to a smooth even finish.

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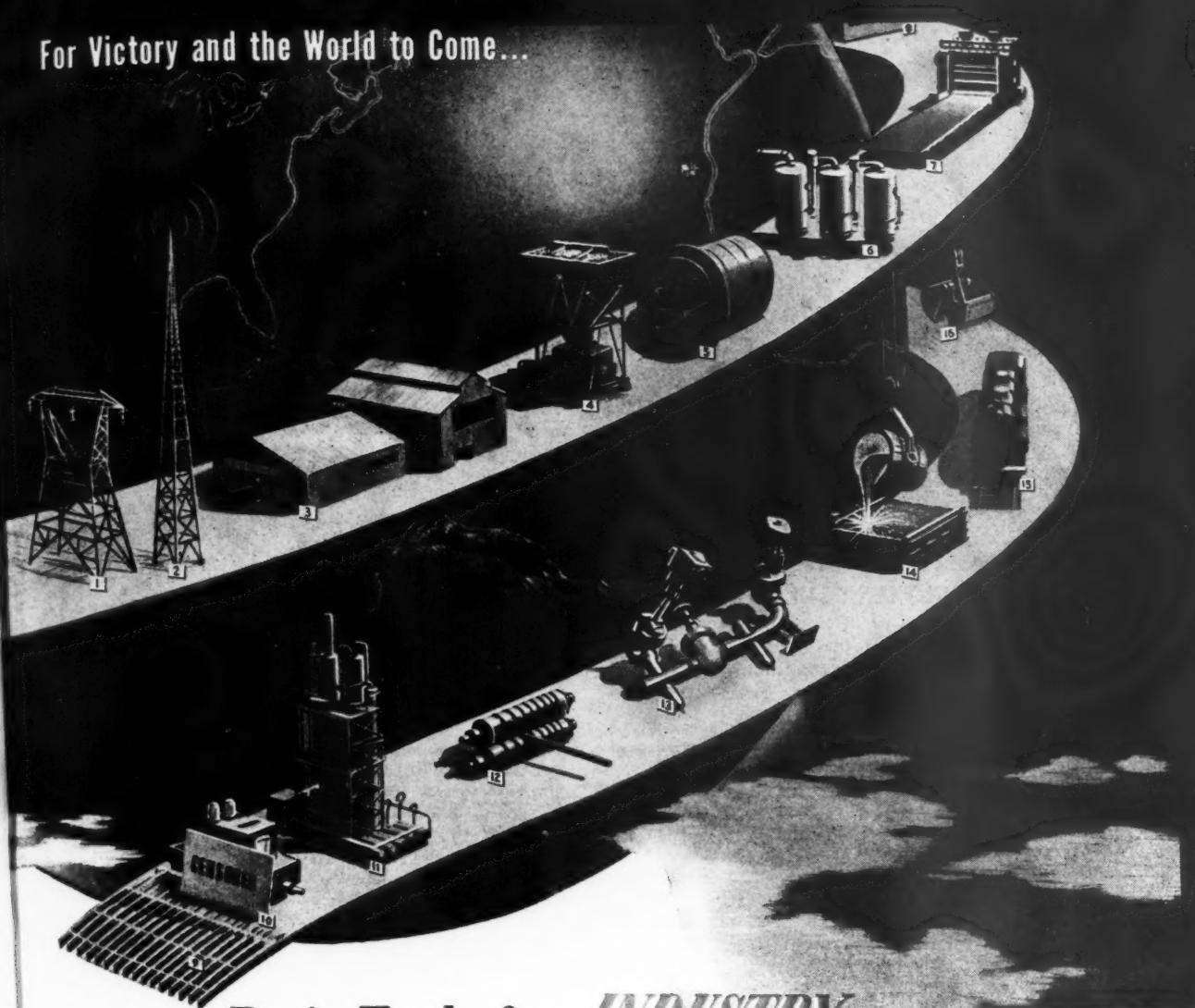
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For Victory and the World to Come...



Basic Tools for *INDUSTRY*

The above "inkling" of the scope of Blaw-Knox products and services must impress any industrialist with the fact that Blaw-Knox possesses skills, facilities, engineering experience of an order to make it truly a partner of industry.

For ferrous and non-ferrous industries Blaw-Knox has long produced rolling mill machinery, rolls and other basic equipment. Its leadership is equally emphatic in fabricated products for railroads, public utilities, the electronic industry and general industry. Among contractors,

Blaw-Knox is synonymous with speed, efficiency and economy. In the process and chemical fields, Blaw-Knox products include all types of equipment as well as engineering and research based upon long experience.

With Blaw-Knox services and products go the plus value of an industry-wide background . . . of ability to think beyond the product into its ultimate uses. A discussion of your special problems is invited.

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GUN SLIDES

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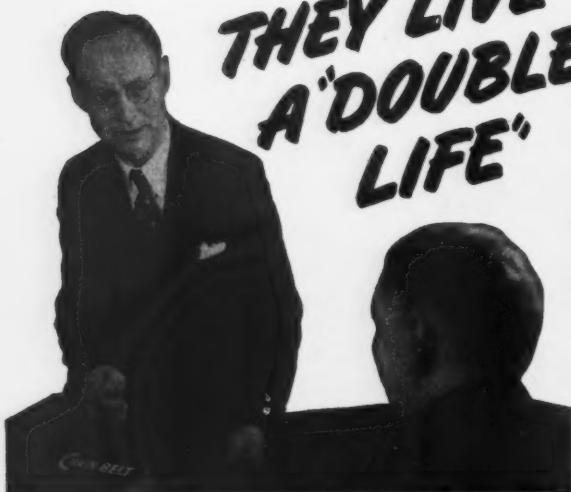
MARTINS FERRY DIVISION,
Bofors Anti-Aircraft Gun Mounts

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Automatic Sprinklers and Deluge Systems

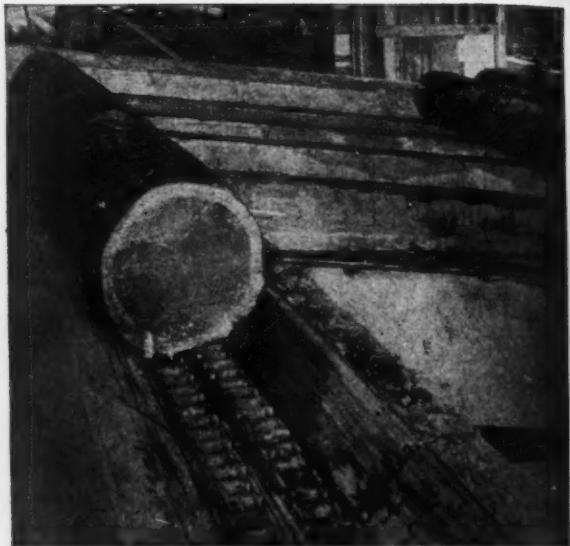
Buy U. S. War Bonds and Stamps

THE ILLUSTRATION presents a partial idea of Blaw-Knox Products and Services.

- 1 Transmission Towers
- 2 Radio Towers
- 3 Standard Buildings
- 4 Construction Equipment
- 5 Steel Forms for Concrete Construction
- 6 Chemical Plant Equipment
- 7 Rolling Mill Machinery
- 8 Electronic Equipment (censored)
- 9 Open Steel Flooring
- 10 Another censored line o. products
- 11 Complete Process Plant Units
- 12 Rolls for Rolling Mills
- 13 Prefabricated Power Piping
- 14 Special Castings
- 15 Castings for Locomotive Frames, Crossheads and Wheel Centers
- 16 Clamshell Buckets

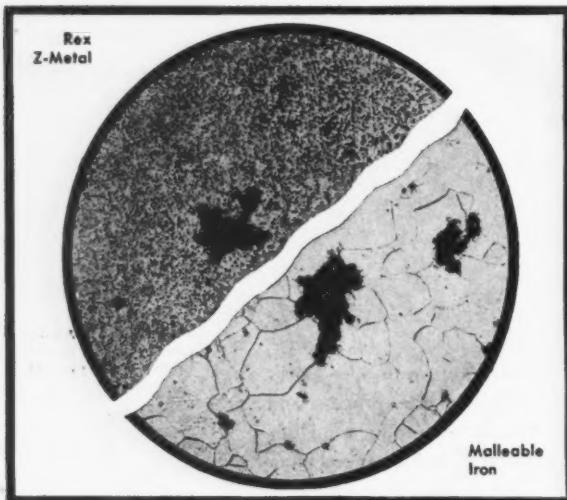


THEY LIVE A "DOUBLE" LIFE"



① "DOUBLE AND THEN SOME!" Why, in mill after mill, Rex Z-Metal chain belts have operated more than double the life span of ordinary chain belts. In dusty, moist or corrosive operating conditions, they can't be beaten for economical, trouble-free service."

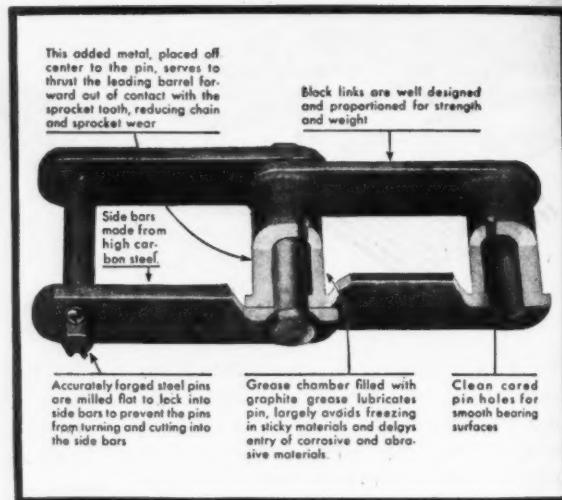
② "Z-METAL'S THE ANSWER where loads are extra heavy or where corrosive conditions are a problem. Just note this installation photo. Grueling service such as this lumber mill log conveyor has to take, is child's play for Rex Z-Metal chain belts.



③ "THIS PHOTOMICROGRAPH (200 X magnification) clearly indicates the uniformity of Z-Metal's grain structure. The small spheroidal particles in the Z-Metal are iron carbide. They and their relation to each other impart the greater strength and hardness to Rex Z-Metal."

* * *

Rex Z-Metal chain belts are the answer to any drive or conveying problems involving heavy load or corrosive conditions. The Rex Man can help you with your chain belt application problems. For chain belt engineering data ask for the 768-page catalog No. 444. Chain Belt Company, 1723 West Bruce Street, Milwaukee 4, Wisconsin.



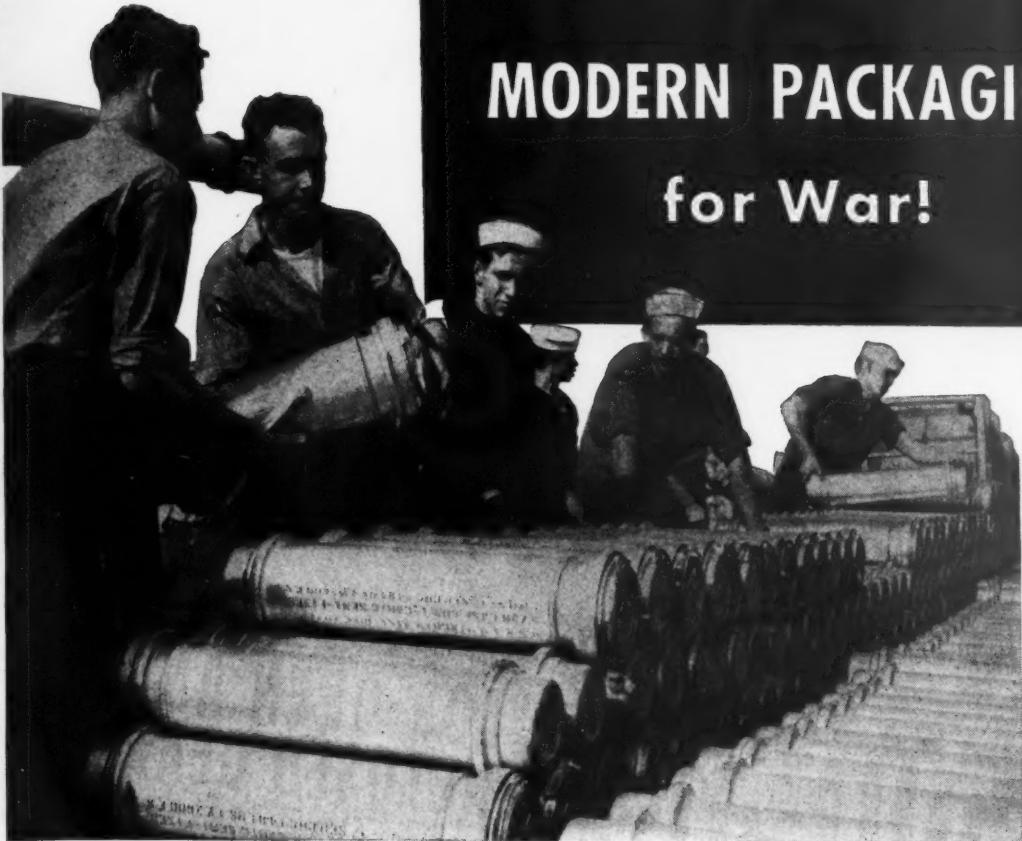
④ "AND FOR REAL TOUGHNESS, combine the strength of Z-Metal with the features of Rex Durobar chain belt, a big favorite in the lumber industry with its famous off-center design and reinforced barrels. It's even more popular when cast in Z-Metal."

REX CHAIN BELTS

More than 2000 sizes and types for the positive transmission of power, timing of operation and conveying of materials

CHAIN BELT COMPANY OF MILWAUKEE

Rex Conveying and Engineering Products Division, Rex Chain Belt and Transmission Division, Milwaukee, Wis. • Baldwin-Duckworth Chain Belt Division, Springfield, Mass.; Worcester, Mass.



MODERN PACKAGING for War!

Official
U. S. Navy
Photograph



TOJO will lose his appetite for war before his men have "eaten" all the metal our Navy guns are throwing at them.

Much of this fine "food" for Japs is packaged—ready for action—in hermetically sealed containers such as the tanks encasing the 5"/38 caliber cartridges which are being loaded on the U. S. warship above.

Brilliant planning and efficiency in the production of tanks won Norris Stamping and Manufacturing Company its original Navy "E". (Subsequently Norris received Army-Navy "E" flag and four stars.) This functional modern container, 6" in diameter by 30" tall, is drawn entirely from one piece of metal.

The rapid progress from aluminum sheets to finished tanks is dramatically visible in operations such as the "ironing" where tanks lengthen out as they pass through the drawing dies... and the paint booth where tanks moving through a positively charged field of electricity are smoothly coated with enamel by automatic spray guns.

Scientific cleaning based on pH Control is an essential factor in the functioning in this record-breaking production line.

An automatic washer removes every trace of drawing oils with Kelite KDL No. 1... rinses, etches the alu-

minum with Kelite Super S for perfect paint adhesion... rinses, neutralizes, rinses again; and, finally, oven dries the tanks. Proper temperatures in the successive tanks and compartments are maintained by thermostats. Effective strength of the chemical solutions is controlled by pH.

The tanks proceed from drawing to painting in a short time, with no hand labor. Rejects are held to an all-time low.

This abbreviated account of an industrial triumph is an example of the efficiency which scientific control in cleaning and processing helps to achieve.

Chart Copyrighted 1942, Kelite Products Inc., 909 E. 60th St., Los Angeles 1.



Mfg. Plants in LOS ANGELES, CHICAGO, PERTH AMBOY, HOUSTON

Western Service Offices in Seattle, Spokane, Portland, San Francisco, Berkeley, Sacramento, San Bernardino, Los Angeles, San Diego, Phoenix, Salt Lake City, Denver, El Paso, San Antonio, Fort Worth, Houston.

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JULY, 1944—WESTERN INDUSTRY



PROTECTION FOR OPEN AND ENCLOSED GEARS

The periodical check-up with a feeler gauge tells the story.

With LUBRIPLATE Lubricants, the teeth of gears are absolutely separated by a load carrying film. Metal cannot touch metal. LUBRIPLATE lowers operating temperatures and seals the gears against rust and corrosion. Yet, in spite of its protective qualities, LUBRIPLATE does not cause drag. Even the most delicate, high speed gears operate better with it. LUBRIPLATE reduces friction to a minimum.

Yes, open and enclosed gears as well as chains, slides, sleeve and anti-friction bearings and all contacting parts last longer and require less power to drive them when lubricated with LUBRIPLATE. Let us send you a copy of "The LUBRIPLATE Film" that tells the whole story. It is written especially for your industry.

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R FOR YOUR MACHINERY

No. 3—Ideal for general oil type lubrication. Ring oiled bearings, wick feeds, sight feeds and bottle oilers.

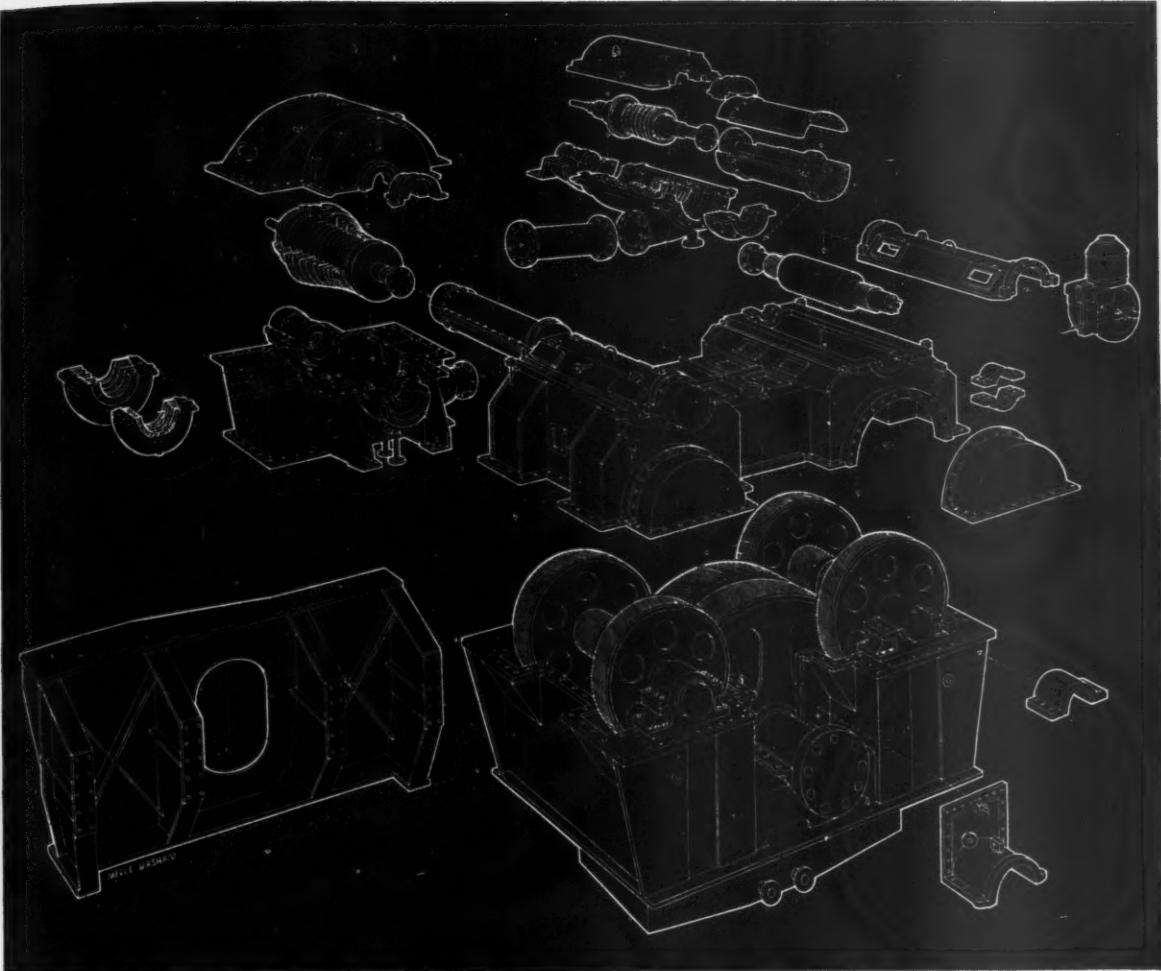
No. 8—Because of its high film strength and long life reflects outstanding performance in most types of enclosed gears (speed reducers).

No. 107—one of the most popular grease type products for general application by pressure gun or cupa.

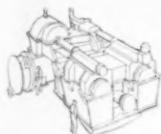
No. 70—for a wide range of grease applications, especially at temperatures above 200 degrees F.

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BALL BEARING—This is the LUBRIPLATE lubricant that has achieved wide acclaim for use in the general run of ball and roller bearings operating at speeds to 5000 RPM and temperatures up to 300 degrees F.



PUZZLES that Hendy puts together



Manufacturing 86-ton steam-turbine reduction-gear units is not a puzzle to us. But it was a challenge when the Maritime Commission called on Hendy to build these turbine power plants and reduction gears which transmit driving force to cargo-ship propeller shafts. Intricate parts are machined by one of the world's finest collections of machine tools operated by craftsmen so skillful that accuracies equal to 1/5th the thickness of a human hair are attained even on the central gear, which stands 12 feet high.

DIVISIONS OF JOSHUA HENDY IRON WORKS

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- POMONA PUMP DIVISION.....Vertical Turbine Pumps
- JOSHUA HENDY DIVISION.....Steam Turbines, Diesels, Gears
- WESTCO PUMP DIVISION.....Horizontal Turbine Pumps
- ANY HENDY OFFICE IS READY TO SERVE YOU

Before 1941 not more than a dozen firms the world over had ever manufactured these units, which have always required the utmost in engineering ingenuity. Proof of how Hendy met this production challenge is told over and over again (at 6000 RPM) as the whirling blades of Hendy turbines drive ships to every corner of the globe.

Modern plant facilities and an 88-year background of manufacturing experience are combined to produce not only turbines but electric generators and motors, pumps for industry and agriculture, mining machinery, turbo-generators, reduction-gears, and Diesel engines. Call on the nearest Hendy office when you are in need of dependable power equipment...hydraulic, mechanical or electrical.

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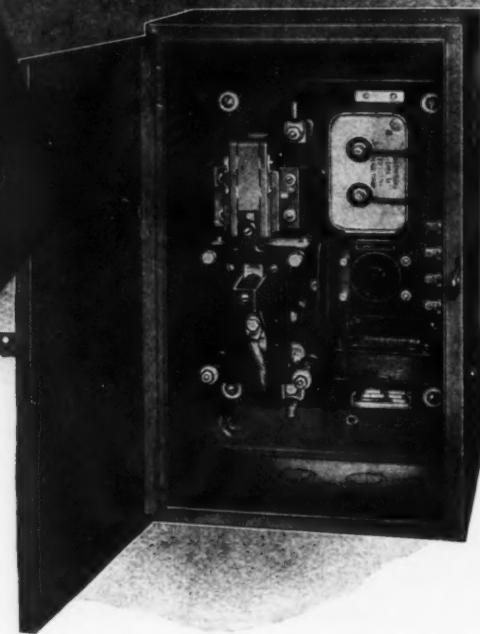
HIGHER FOR LONGER RATING AND CONTACT LIFE

SQUARE D
SYNCRO-BREAK
RESISTANCE WELDER CONTACTORS

Arcing is eliminated at the contact tips of **SYNCRO-BREAK** contactors by separately energizing the magnet "shading coil" from a transformer and rheostat circuit. Correct rheostat adjustment causes the contacts to part as the alternating current wave approaches zero. Thus, the contactor interrupts zero current and no arc is drawn.

Elimination of arc heat at contacts increases allowable ratings and contact tip deterioration is reduced substantially. Rheostat adjustment is not critical and synchronization remains stable over long periods of usage.

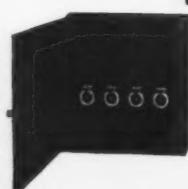
Among the important mechanical design fea-



tures which assure long, trouble-free service are: Hardened, knife-edge bearings for long life without lubrication. Solid contact supports to conduct away heat and relieve contact studs from impact strain. Low inertia moving parts and short contact gap, permitting consistent high-speed operation.

FOR FULLY AUTOMATIC CONTROL OF RESISTANCE WELDING MACHINES Use Saffront Weld or Sequence Timers with SYNCRO-BREAK Contactors or HIGH-SPEED Contactors

Available in 18 NEMA standard types with separate pneumatic timing relays for each step of the welding cycle. All electrically energized parts are placed behind a protective panel. Calibrated timer dials are adjusted from the front.



Notice attractive new flat-door cabinet construction which harmonizes with Saffront timers. This design allows more interior wiring space without increasing overall outside dimensions. Syncro-Break contactors are single pole only.



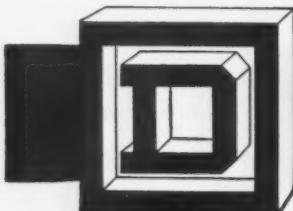
Available in either single or double pole, employing the same contactor construction as the Syncro-Break. High-Speed contactors without the synchronizing circuits are applied where operation is less frequent and loads are lighter.



ELECTRIC EQUIPMENT

KOLLSMAN AIRCRAFT INSTRUMENTS

SQUARE D COMPANY



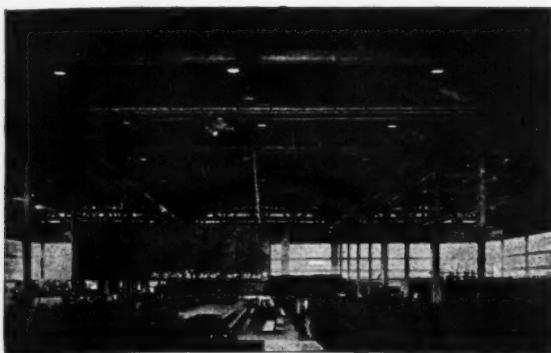
LOS ANGELES 21

SAN FRANCISCO 3

DENVER 4

STRENGTH IS IMPORTANT

... BUILD WITH TIMBER STRUCTURE



PORLAND. Steel warehouse for Woodbury & Co. The roof of this 200'x300' building is supported by 35-67' trusses, 15 lb. dead load, 40 lb. live load, plus 14,000 lb. concentration at center line of bottom chord and adjacent to each end of the truss. Concentration supports a three-point suspended traveling crane. Architect: Richard Sundleaf. Contractor: Wegman & Son.



PITTSBURGH. Fleming Park Bridge—756' (six 126' spans) was built for 12-ton trucks and 30-ton street cars. Designed by Allegheny County, Pennsylvania. Detailed, prefabricated by Timber Structures, Inc. Erected by J. F. Casey Co., Inc. and McCrady Construction Co., Aspinwall, Pa. Verne Ketchum, Engineer for Timber Structures, Inc.

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STRUCTURES**
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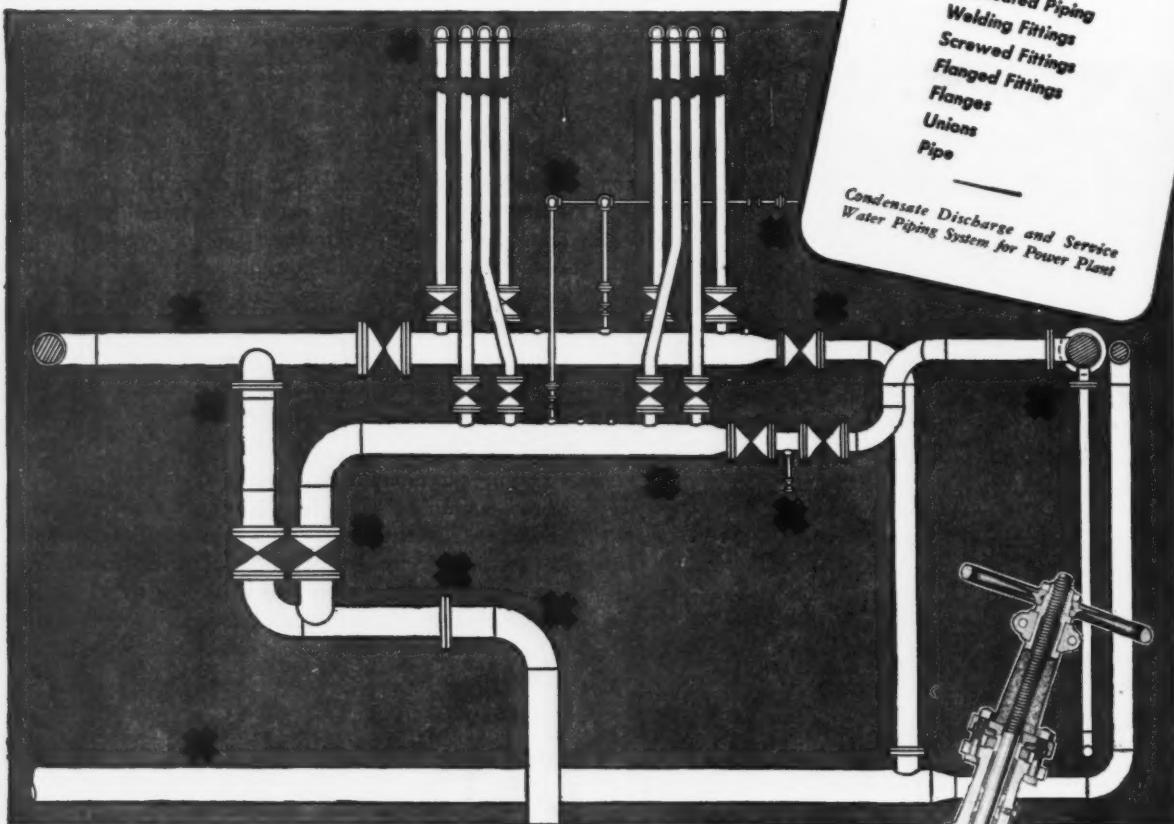
If west of the Mississippi, send to Portland
8, Oregon. If east of the Mississippi, send
to 535 Fifth Avenue, New York 17, N.Y.

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No matter what your needs in piping equipment—whether for power or processing systems—all the benefits of single source supply can be yours. Pipe, fabricated piping, valves, fittings—all these essential materials down to the last accessory are available from Crane. You choose exactly what you need—from the world's largest selection for all pressure-temperature classes.

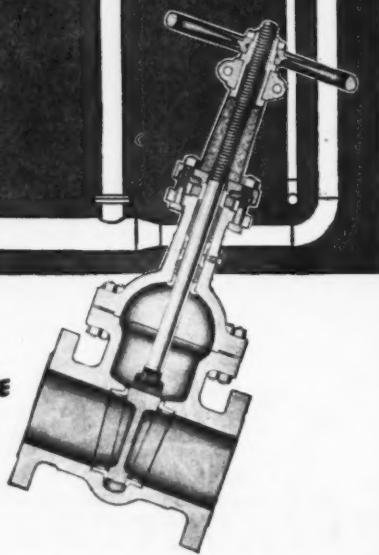
Ordering—keeping of parts stocks—maintenance—such operations are simplified if you Crane equip. More important, one responsibility for quality and craftsmanship of piping materials is a primary aid to good installation. Crane meets that responsibility with a record of 89 years' leadership in the piping equipment field. CRANE CO., General Offices: 836 S. Michigan Ave., Chicago 5, Ill.



ONE STANDARD OF QUALITY

Equipping completely with Crane materials insures one high standard of quality in every part of piping systems. That dependable quality is exemplified in Crane Steel Gate Valves: Finest flow behavior results from their straight-through ports. Severest line stresses are overcome with rugged bodies. Smooth operation is maintained by a ball-joint type stuffing box gland, strong tee-head disc-stem connection, and ample stem bearings. Positive seating is aided by extra long guide ribs.

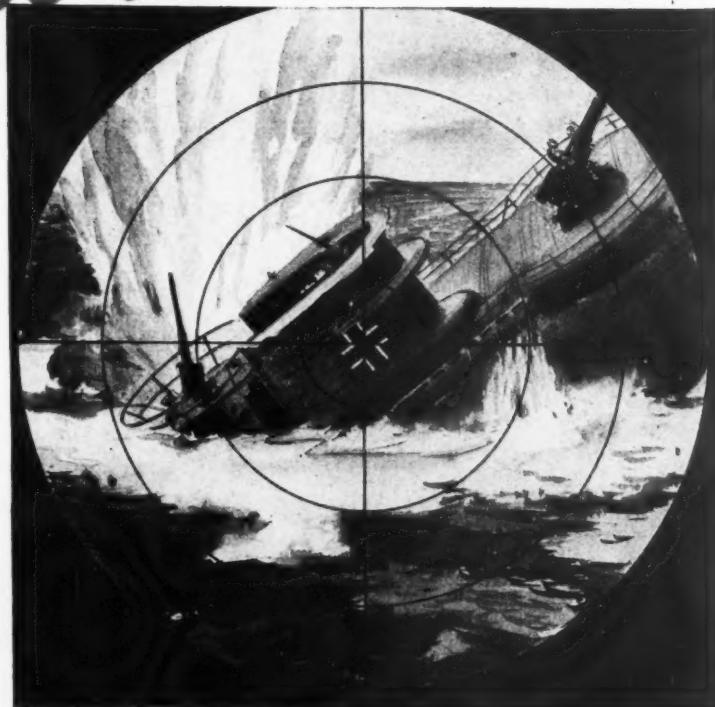
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WEDGE GATE
VALVES



CRANE

VALVES • FITTINGS • PIPE
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IT'S "GO" OR "NO GO"



And 'X' Marks the Spot

Trained accuracy and split-second timing enable a navy gunner to score a "bull's-eye. So "X" marks the spot where another enemy U-boat goes down. Such feats, all important steps in the winning of the war, are possible because the thousands of small parts that make up our weapons are fitted to work smoothly and flawlessly.

Manufacturing to exact tolerances won't permit even a small degree of guesswork. Eliminating faulty parts and helping to build dependable equipment is the important job Kobe Master and Reference gages are doing today. Without these high-accuracy gages the inspector's "GO" or "NO

"GO" would be worthless, America's industrial leadership impossible.

Every Kobe gage is a precision-engineered instrument built to standards many times finer than those used in the finest of watchmaking. Nothing has been left undone to insure uniform quality. Research has developed the best materials for each type of gage. Special treating processes and methods of successful chromium plating were found. Kobe's own manufacturing technique now includes special testing equipment and master gaging which makes that extra degree of exactness possible. It is this

constant attention to minute detail that results in gage perfection.

Kobe's modern facilities have been greatly expanded, of course, to meet the heavy demands of war. Out of this experience will come new skill, new planning and many other benefits for post-war industry. Tremendous requirements in the coming peace-time will mean the development of new products, new services, better ways of doing things. When tomorrow's production comes, Kobe's Master and Reference gages will be available—in quantity and quality—to play their part.



*Master and
Reference* GAGES

KOBE, INCORPORATED
3040 East Slauson Avenue • Huntington Park, California



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to excessive departmental record making. Uarco forms are especially made for your particular needs. They are designed either for handwritten use or for machine use, may be carbon interleaved or non-interleaved, may be used in a Uarco Autographic Register, typewriter, billing machine or tabulating machine.

Why not find out today the many ways that Uarco forms can help your business? If existing forms will not solve your problem...Uarco will design forms that will. A Uarco representative will gladly consult with you...without obligation on your part.

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Chicago, Cleveland, Oakland • Offices in All Principal Cities

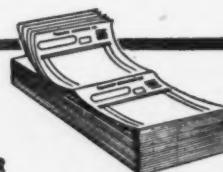


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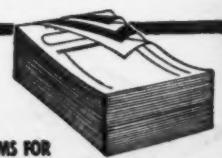
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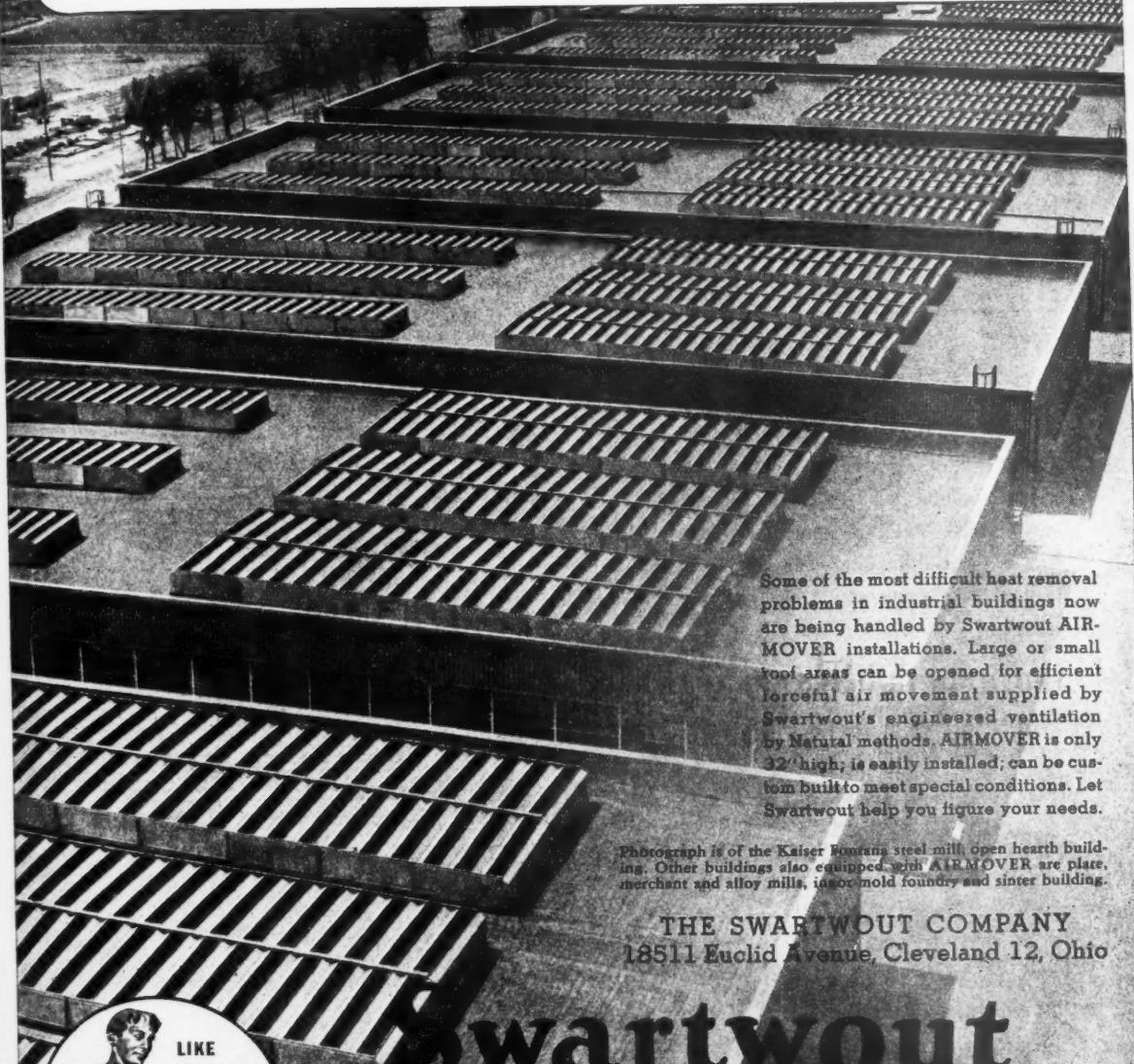
PANY
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uly, 1944

Swartwout **AIRMOVER** gives you wholesale air movement in factory buildings

Unique combination of ventilating efficiency
and architectural adaptability



Some of the most difficult heat removal problems in industrial buildings now are being handled by Swartwout AIRMOVER installations. Large or small roof areas can be opened for efficient forceful air movement supplied by Swartwout's engineered ventilation by Natural methods. AIRMOVER is only 32' high; is easily installed; can be custom built to meet special conditions. Let Swartwout help you figure your needs.

Photograph is of the Kaiser Fountains steel mill, open hearth building. Other buildings also equipped with AIRMOVER are plate, merchant and alloy mills, iron mold foundry, and sinter building.

THE SWARTWOUT COMPANY
18511 Euclid Avenue, Cleveland 12, Ohio



swartwout

Specialists in Air Movement by *Natural* Methods



Whatever and wherever you haul...fields to plants...to warehouses...to market...your trucks can haul more...with Trailers.

A truck is like a horse...it can pull more than it is designed to carry. Thus, it's very easy to make a truck do more work...by pulling Trailers. Today's trucks are well-built with plenty of power to spare. That's why, in these days of equipment shortages, a Trailer can, and should, be hitched to every truck that can haul it. For example, at the right is what a 1½ ton truck can really haul:

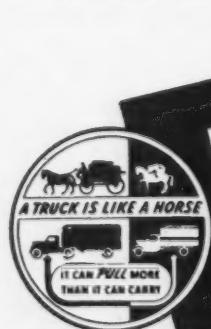
FRUEHAUF TRAILERS ARE AVAILABLE

Consult your Fruehauf Branch to determine your specific needs. They will gladly help you file application for Certificate of Transfer.

World's Largest Builder of Truck-Trailers

FREUHAUF TRAILER COMPANY

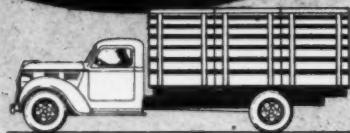
Western Manufacturing Plant—Los Angeles



**FRUEHAUF
TRAILERS**
"ENGINEERED TRANSPORTATION"
809 U.S. Pat. Off.

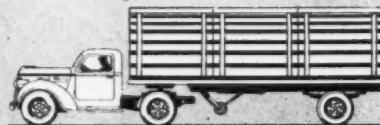
TRUCK-TRAILER TRANSPORT IS DOING AN ESSENTIAL JOB FOR ALL AMERICA

HOW TO HAUL 6 TO 12 TONS with a 1½ TON TRUCK



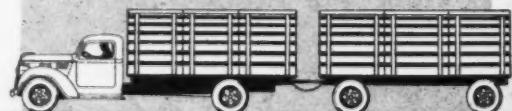
By converting to a Truck-Trailer...you can haul

6 TO 9 TONS



By adding a Trailer...you can haul

9 TO 12 TONS



Sales and Service Branches

Los Angeles	Seattle
San Diego	Spokane
San Francisco	Portland
Fresno	Denver
Phoenix	Salt Lake City



60 foot washboard for butadiene gas

Shown here is a stripper-scrubber, a busy piece of refinery equipment that strips off butadiene gases and then scrubs out impurities—a vital operation in the manufacture of synthetic rubber.

This particular vessel is the largest one of its kind ever built. Although it towers some 60 feet, its steel shell is but one-half an inch thick—a meticulous fabrication job and one logically assigned to the craftsmen of Consolidated Steel Corporation.

Precision work quickly accomplished—today it is continuing to win for the men and women of Consolidated Steel every basic government industrial award, tomorrow it will be devoted to the construction needs of a peacetime America. Inquiries looking to future construction are solicited. Address the president.

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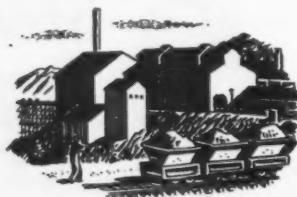
LARGEST INDEPENDENT IN THE WEST

CONSOLIDATED STEEL CORP., LTD., LOS ANGELES
LONG BEACH, WILMINGTON, CALIF.; ORANGE, TEX.



Even boiling water won't cut this grease

The combination of water and high temperatures has always been tough on greases. Until the development of UNOBA—Union Oil Company's remarkable barium base grease—there was no lubricant available that would effectively protect machinery against both operating conditions.



The flexible use of Unoba has considerably simplified the problem of lubrication at several large steel

mills. Unoba is used equally well on conveying systems, coke and skip cars, pusher machines, mud guns, cranes, shaker screens, etc.

Unoba successfully protects machinery and other metal parts against corrosion from moisture. The versatility and stability of Unoba have been proved under every operating condition with highly satisfactory results. It withstands temperatures of more than 250° F. and will not

wash off in the presence of water or steam.

Because of its all-around properties Unoba has done away with as many as 5 different greases formerly used to lubricate some machines.



There's a Union Oil representative listed in your phone book. He'll be glad to give you additional information on this superior grease. Phone him today.



TOOLS TO BUILD THE WORLD OF TOMORROW

.... born from the need of today



Born of a need to conserve critical aluminum, Thor "Armored-In-Plastic" portable electric drills today are smashing quotas on the jobs for which they were created!

Developed with features that provide light weight, easy handling, toughness and durability . . . these remarkable tools bring to vital industries unsurpassed production performance.

Thor "Armored-In-Plastic" portable electric tools already have a solid background of experience that will enable them to fashion—*more rapidly and more lastingly*—the emerging "World of Tomorrow."

AND...WHAT ABOUT "THE TOOLS OF TOMORROW?"

Thor has more new and revolutionary portable electric tools in its experimental laboratories today than at any time in its fifty years of pacing the field with new developments. For a brief glimpse of the trend, ask for your copy of Thor's remarkable new booklet, "Tools to Build the World of Tomorrow...Born from the Need of Today."

Thor

INDEPENDENT PNEUMATIC TOOL COMPANY



JOB-PROVEN FEATURES OF *Thor* "Armored-In-Plastic" ELECTRIC TOOLS



Extreme lightness of weight—Application of "Thorite" plastic in gear case, field case and handle housings provides 14% lighter weight—without sacrifice of maximum power and other essential properties.



Exceptionally high impact strength—Tests by approved laboratory methods show "Thorite" plastic tool housings to have impact strength greater than aluminum... assuring high resistance to shock blows.



Remarkably low thermal conductivity—"Thorite" is a non-conductive plastic that prevents heat developed by the motor from being transmitted to the hand of the operator... providing constant cool handling.



Increased safety factors—"Thorite" plastic housings, so efficient as non-conductors, offer extra safety against electrical shock.



Toughness and durability—Strength characteristics of "Thorite" plastic, as shown under approved testing methods, compare favorably with aluminum.

(Tensile strength—8,000 pounds per square inch; Flexural strength—13,000 pounds per square inch; Compressive strength—23,000 pounds per square inch.)

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July, 19



**FAIRBANKS-MORSE
CENTRIFUGAL PUMPS**

A complete "family" of single-stage, split-case pumps for low, moderate, medium, and high heads, is described in Bulletin 5810D. Many other bulletins available on other types.

Why Should YOU Furnish the Guinea Pigs?

• Trying out pumps—experimenting with them—is risky business.

You just don't do it! And you shouldn't do it.

That's our business.

We do the experimenting. We do the research. We make sure that Fairbanks-Morse Pumps meet all your requirements and more—long before they are installed.

You know in advance that your pump investment is sound—that it will pay dividends in the efficiency, dependability, low-cost operation and longer trouble-free service that Fairbanks-Morse Pumps can give you.

If you have pumping problems—or if you are planning for the future, why not let Fairbanks-Morse pump experts help you as they are helping so many others. Write Fairbanks, Morse & Co., Fairbanks-Morse Building, Chicago 5, Illinois.

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Pumps

Spotlight on the NEWS

WESTERN INDUSTRY
FOR JULY, 1944

VOLUME IX NUMBER 7

Coast Challenges Detroit

If Detroit wants to inflict a 1942 model automobile on the American public after the war, the public won't necessarily have to take it. Instead, West Coast aircraft manufacturers may be able to come through with the kind of postwar car people really want, because their flexible tooling technique is better adapted to it than Detroit's fixed system. So says the author of our leading article this month (pages 25-27). It's a challenging idea and the country may be ready to accept it.

Production Picture

Regarding the present outlook, no change in overall industry activity has taken place. War production contracts (p. 64) climbed back in April practically to their previous level, and aircraft and shipbuilding (6, 64) are becoming more stabilized. Employment is dropping rather sharply (p. 65), but for what reason it is too early to determine. Rising freight movement indicates continued activity, and the slight decline in electric power consumption (p. 64) may be due to shutdowns in a few industries rather than any general slackening.

Order Out Of Chaos

Topside management in the armed services finally has seen the light (Washington news letter, p. 33) about the necessity of working with the production urgency and manpower priority committees in the West, at least to the extent of keeping these committees posted on the issuance of contracts, instead of ignoring them. Result will be a much smoother operation of our war production machine.

We Need Lessons, Too

Admirals and generals, however, are not the only ones who need to learn cooperation. The various localities in the West have many lessons ahead of them in pulling together, but the Washington rep-

resentatives of Western chambers of commerce have made a fine start (p. 33). Now if the various Western regions can hold some get-together meetings out here, some tangible progress is bound to result.

Ignorance Is Folly

Top management, which gripes greatly about labor domination, appeared at the N.A.M. Institute of Industrial Relations at Santa Barbara for the speech-making part of the affair. But hardly any of the topflight men heard the practical advice (p. 49) in negotiating wage contracts given by a former labor leader who is now on the management side. Less griping and more study might be helpful.

Hiring The Veteran

If a veteran comes back for his old job on the 39th day after being mustered out, accepts it and then doesn't show up for several days because he is looking for something better, do you have to take him? Kenneth Shaffer, industrial relations manager of Standard Oil Company answered several questions like this (p. 38) at the Industrial Relations Institute at Santa Barbara. Whole subject is full of land mines.

Northwest Opportunities

What can you manufacture in the Pacific Northwest? Bonneville Power Administration has endeavored, by means of a thorough survey (pp. 40-42), to give a detailed answer for the benefit of the industrialist who wants to locate there.

Magnesium's Future

That 40 per cent production on cut at Basic Magnesium, Inc., is not necessarily the beginning of the end for the world's largest magnesium factory. President Hobbs of BMI and its parent company (by adoption), Anaconda Copper Mining Company, is reported submitting plans to Washington (p. 48) for fabrication of magnesium and other postwar developments. We hope for details in the next issue.

New Lumber Uses

Some say that the lumber industry is on its last legs as far as serving the building field is concerned; others say it is just coming into its own. In any event, the plywood people are going to find out what further may be discovered in uses for lumber (p. 59) and are setting up a new research program.

Just What Is A Job?

Permanente Foundation are not satisfied with just a name, like welder or shipfitter. They have made a shipyard study and classified jobs (p. 36) so you can tell how hard they are, how heavy weights have to be lifted and how often, how much walking is entailed, etc. An important step forward. Useful not only in classifying workers for physical ability, but also is a key to efficiency.

Home-Made Boring Mill

Necessity is still the mother of invention. Western Gear's home-made boring mill, enabling boring and facing the pedestals on a bedplate at the same time (p. 58) may suggest an idea to others.

Urea Wood Treatment

More people have wanted information about the urea treatment of wood as an aid to bending and for preventing checking during drying than about anything else, the San Francisco regional office of SWPC reports. The treatment makes it possible to bend wood to a far greater degree than ordinarily, while afterward it becomes stiffer than normal wood and considerably harder, but still can be worked with ordinary woodworking tools. Summary of some of the technical data on p. 44.

Charging for Check-off

If management is required to carry on the check-off practice, why shouldn't management charge the union a fee for doing so? (p. 30). Well, why not?



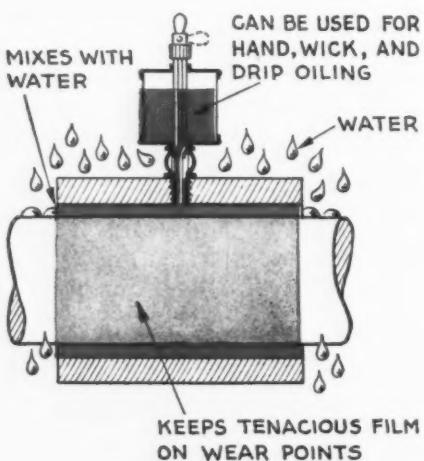
STANDARD ENGINEERS NOTEBOOK



VOL 2-W NO. 5

Lubrication in severe water conditions

Because it assures good lubrication in the presence of water, Standard's Calol Marine Oil 31X has proved excellent for many bearings operating in moist conditions.



It is made from specially selected and refined oils to which have been added special compounds. These compounds assure its thorough saponification with water to form a rich, creamy emulsion. It tends to eliminate corrosion of metal parts. The emulsion keeps a tough, tenacious lubricant film on bearings under the most severe conditions.

Calol Marine Oil 31X is recommended for all external lubrication done by hand or through wick-feed or drop oilers. It assures protection against wear on pins, valves, bearings, and many other parts where a saponifying oil is desired.

Standard Fuel and Lubricant Engineers are always at your service. They'll gladly give you expert help—make your maintenance job easier. Call your Standard Representative or write Standard of California, 225 Bush St., San Francisco 20, California.

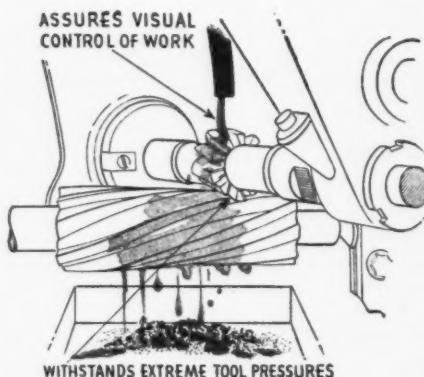
Transparent oil for machining tough metals

When visual control and a good surface finish on tough ferrous metals, steels and irons are required, Calol Cutting Oil-20TA is recommended.

Calol Cutting Oil-20TA is highly transparent. It is a combination of oils compounded with additives. This gives it high lubricating value and extreme-pressure qualities. It can be used on turret lathes, automatic screw machines and other equipment requiring an oil for severe machining operations.

Because its compounding will tarnish brass or bronze, Calol Cutting Oil-20TA is not recommended for those metals unless they can be cleaned or pickled after they are machined.

The wide selection of Calol cutting and soluble oils developed by Standard of California offers a correct coolant and lubricant for every metal-working operation.



STANDARD OF CALIFORNIA

AUTOMOBILES? PERHAPS THE WEST CAN BUILD THEM BETTER!

Aircraft's Flexible Tooling Technique Predicted As Key To Turning Out The Post-War Car That People Really Want

Can reconverted aircraft manufacturing plants on the Pacific Coast compete successfully in automobile manufacturing with Detroit, where supposedly all the automotive "know how" in the country is concentrated?

Here is one man who says we can not only build automobiles just as well, but actually build them better, because of the flexible tooling technique that the aircraft industry has developed under war pressure. He intimates that the mass production methods of the automotive industry may actually be too inflexible to suit the needs

of people who will demand something more advanced after the war than a 1942 model car.

By THOMAS A. WATSON
Educational Supervisor, Engineering-Science-Management War Training, U.C.L.A.
(from address at Southern California Management Conference)

ONE cause of the difficulties experienced by the automotive people in tooling for aircraft was their practice of thinking of numbers of parts in the hundreds of thousands, when, in the case of

aircraft manufacture, the number of parts to be made were in the thousands.

The designers and the toolmakers in that part of the country designed and fabricated all tooling Class A, which, when completed, could produce hundreds of thousands of parts identically. With the frequent engineering changes demanded of them in the construction of aircraft, the minds of the tool designers and tooling men in the Middle West almost snapped, because of the time and the cost of changes in Class A tooling. They lacked flexibility in tool design.

* Battery of drop hammers at Douglas Aircraft plant at Santa Monica, suitable for stamping automobile bodies and fenders.





More than 20,000 parts in eight hours turned out by only a handful of men on this Lockheed single-action hydro press with rotary table. After each "feeder" has placed one or more small parts on the die as it wheels past him, the table is turned one notch until finally all dies and parts come under the hydro's heavy hoof to be pressed.

Let me use one example to make this point clear. It was decided to contract the design and fabrication in the Middle West for tools needed to form the instrument panel for one of our large bombers. The sub-contractor returned an estimate of \$25,000 for the tools to do the jobs. Due to the pressure of time, the tooling was designed and made in Southern California for this panel and at a cost of less than \$1,000.

Now the importance of this example is only to call attention to the flexibility of the tooling developed by the aircraft industry in California. The tooling developed here for this job would not produce more than 10,000 parts before encountering trouble. The number of parts that could have been produced on the tooling designed in the Middle West would have been closer to a million parts.

Before 10,000 parts were made, however, an engineering change was made which called for a complete redesign of the dies in question. This statement is extremely important to all of you people. It will be important from the point of view of reconversion to peacetime activities.

Now let us consider what we can produce in Southern California when the war is over that will employ the large number of people that are now here. On a recent trip through the Middle West, I discussed post war manufacturing with many of the automotive people, and it was apparent that their intention is to produce the same automobile as they built in the year 1941-42. I was very much disappointed on learning this.

It was most unfortunate for the automotive people that the horse pulled the wagon some 45 years ago instead of pushing it, because it dictated to early design-

ers the trend in placing the engine in front of the car. The hood has grown higher and higher in the past ten years, the seats are lower and the windshield smaller, resulting in poor visibility for the driver, with a consequent increase in traffic hazards.

With a greater part of the automobile of tomorrow being formed from sheet metal and plastics, and possibly utilizing the vast quantities of dural that can be produced economically, is there any reason why the entire car should be made of steel? I don't think so. The car could be made more roomy and still lighter in weight.

We know a great deal about the forming and fabrication of dural through experience gained from the aircraft industry. We are rapidly becoming the plastic center of the country as far as industrial usage of the materials is concerned.

Tomorrow's Car

I visualize the car of tomorrow with a high speed engine in the rear, which will operate two fluid drives; one for each rear wheel. It would, therefore, be unnecessary to use torque tube drives, transmission gears and heavy clutch mechanisms as we do today.

The interior arrangements too must be entirely different than in our present day automobile. One fixed seat for the driver, and the other seats flexible in arrangement, permitting a variety of positions to meet the occasion. The automobile of tomorrow should be equipped with air springs instead of friction springs so the adjustments could be made, varying the spring support with the load in the car, thus improving rideability. It should also have a plastic top and should be equipped with air conditioning.

There is one thing we are short of in Southern California to accomplish a job like this, and that is a plant manufacturing engines. We need such a plant. As far as sheet metal is concerned, any of our large aircraft plants could do this job when properly toolled. The installation of conveyor systems for material handling would be mandatory.

Tradition has been an important factor in the designing of the car of yesterday. I think the public will forget tradition by the time new cars are produced again, because they are looking forward to something better, easier and more economical to operate, knowing that war is bound to accelerate the technological progress of the mechanical world. The philosophy of flexible tooling predominant in California permits placing on the market an automobile in a very short time. This car would use standard engine similar to that used in jeep, since this engine has been toolled for high production. This would satisfy the need until a better prime mover has been developed.

The use of the drop hammer and kidney dies would permit rapid development of such an automobile or any other pro-

duct than you have in mind. Technicians have developed the use of the drop hammer in coordinating the parts for assembly to a point that is something to be admired.

There are many people who will state that we do not have sufficient special machinery to start such a project, but that machinery could be developed as demands for the product warrant it. We have all the fundamental machines, such as spot welders, special mills, Keller machines for dies, jig borers for jigs, and we also have personnel trained in the use of standards and the techniques of assembly.

We have learned a good deal about the importance of line assembly. To be sure, we have two schools of thought on the Coast on assembly line procedure. One claims the jigs should be static and the personnel moved from jig to jig as the work progresses; the other contends that the jigs should move from station to station, either as a jump line or a line of constant motion, and the personnel should remain static as to location. I prefer the latter school of thought.

With this experience and development in production methods, Southern California has great possibilities in the manufacture of any product of which you might think.

The automobile is not the only vehicle for which we need changes. The railways of America have attempted to speed up their passenger train by using heavy diesel engines as prime movers. However, most of you recall that the major accidents to our fast trains in America have occurred on a turn or bend in the track. This heavy train traveling at high speed tends to spread the track, with disastrous results. Therefore, something must be done to meet the need for a dependable high speed transportation system.

It should be an all-weather system that will run on a time-table schedule the year round. It is possible to use a mono-rail track with a lightly constructed car or fuselage suspended from it, which will be pulled or pushed through space by a variable pitch propeller, powered by an electric motor.

By using an electric motor, it will not be necessary for the vehicle to carry its own fuel, thus reducing weight. The mono-rail could be suspended over the present right of way, and would be used for mail and passenger travel only. It would be unaffected by floods, snow storms, grade intersections and other hazards endangering our present method of transportation.

A good deal can be done in the design of freight cars to speed the movement of traffic throughout the United States. The storage compartments could be constructed in sections of various sizes, easily removed from the chassis of the car and trucked to the shipper or consignee for loading or unloading. This would eliminate double handling heavy crates and considerable damage to the product shipped.

These storage tanks or compartments could be constructed of light materials,

even laminated plastics or sheet magnesium and can well be made in any of our large plants. What I wish to convey to you is the thought that we will not suffer a post war depression if we have the foresight and willpower to secure our position in the industrial world. We have the plants, the equipment, the personnel, and the raw material in abundance. We simply need initiative.

Some of us might display a defeatist attitude, and spread the idea that the great plants of the east and middle west have the jump on us. Don't you believe it. The automotive industry, for example, has been 100 per cent converted to war products for the past few years. Its job of getting back into civilian production, therefore, will be more difficult than for most industries when peace comes. An article recently published by the Automotive Council for War Production clearly discusses the disadvantages facing that industry. One company is confronted with this problem, to quote:

"Out of 75,000 automobile machine tools that this company owned, 50,000 were converted to war production."

More than 3,000 automotive machine tools were disposed of to other war producers.

60,000 government-owned machine tools are mixed together with this company's automobile equipment. These are scattered, not only in the company's peacetime plants, but in the 12,000,000 square feet of war plants erected by the government.

To reconvert, \$500,000,000 will be spent for

• Semi-automatic machine for positioning and simultaneously welding bulkheads in aluminum or mild sheet steel fuel tanks. Roller spot welds are motor driven around the arc until all welds are completed. Welding time for entire operation, one minute.



retooling, modernization and plant expansion.

Specially designed government-owned machine tools must be cleared from company plants.

Essential machines, many of which were sold to other war producers must be replaced or recovered.

\$500,000,000 worth of wartime inventories—parts in process and raw materials—must be removed from company plants.

At least 45,000 new machine tools are required."

Another firm has this problem, again quoting:

"This particular automobile company converted 87 per cent of its automotive machine tools to war production, i.e., rebuilt them, modified them, adapted them.

There are 7,039 government-owned machine tools in the company's own plants.

There are 20,903 government-owned machine tools in all the plants the company now operates, of which 2,000 machines might be usable in peacetime work.

To store these government-owned tools, 3,000,000 square feet of floor space would be required. It would cost the company \$2 1/4 million to get these government-owned tools out of the way.

There are \$150 million of raw materials and processed materials in the company's plants.

The company has contracted for, and therefore has a purchase commitment liability for, \$500 million of supplies and raw materials.

(The company's entire net worth is \$177 million.)

There are 75,000 tons of raw materials in the company's own plants, with only a negligible portion usable in making automobiles."

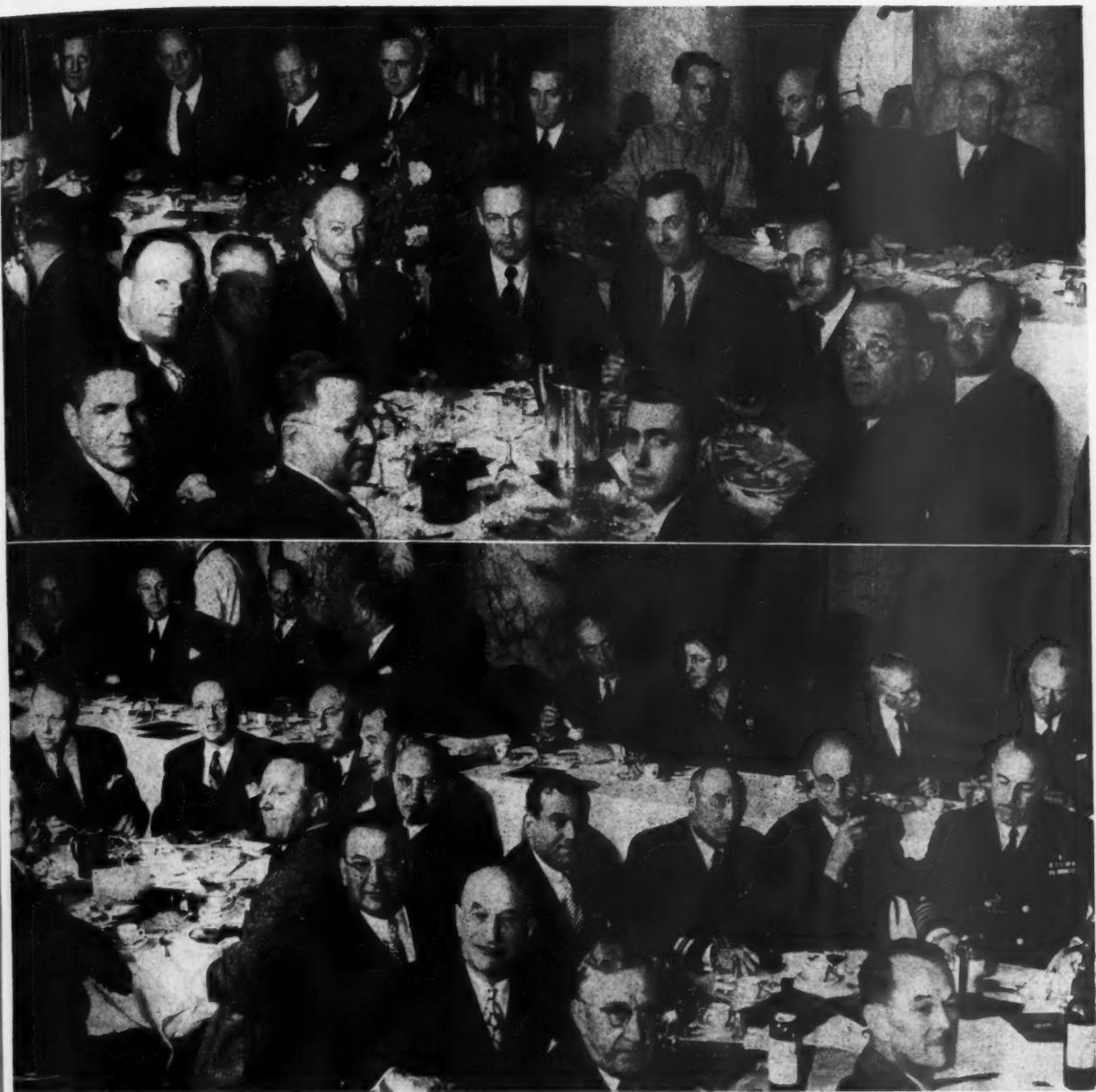
The cost and the time necessary to convert and retool our own plants would be far less and we have the additional advantage of starting fresh.

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Cross-Section of Industry at San Francisco N. A. M. Banquet

Top row, part of speakers' table, from left: Louis Campiglia, pres. C. & H. Sugar Refining Co.; E. D. Coblenz, publisher, S. F. Cal. Bulletin; O. H. Fisher, pres. Cal. Mfrs. Assn. and Union Diesel Engine Co.; J. D. Greensward, asst. treas. Allis-Chalmers Mfg. Co.; Commodore Phillip H. Roach, U. S. Coast Guard; Adrien Falk, v. p. S & W Fine Foods, Inc. and pres. S. F. Chamber of Commerce; Albert M. Paul, pres. California Products Co., Fresno; Lt. Comdr. Edward M. Seay; Henry White, pres. Hawaiian Pineapple Co.; Major C. R. Payne; Walter S. Johnson, pres. American Box Corp.; Lt. (jg) M. R. Merryfield; Jas. McIntosh, genl. counsel, war dept. price adjustment board. Second row of tables. Left, beginning in corner next to speakers' table: Everett Myers, D. H. Matthews, Dr. Carter, all of Food Machinery Corp.; Joe Perrelli and Wm. Harcourt, Filice & Perrelli Canning Co.; G. A. Armes, W. L. Montgomery, both of Genl. Engineering & Drydock Co. and A. W. Beall, pres. Santa Clara Packing Co., San Jose. Table at right: Marshall Dill (left, facing camera), Mrs. Jos. Thompson, Kirby Crittenden, Fay Improvement Co., Mrs. Jas. Emery, H. Clay Miller, Mrs. Phillip Fay, Celestine Sullivan, Mrs. Marshall Dill, Mrs. Fred Koster, Jos. Thompson, Pac. Electric Mfg. Co., Mrs. Celestine Sullivan. Beyond this table, behind Celestine Sullivan, are P. E. Letchworth and C. H. Doty of Atlas Imperial Diesel Engine Co. Center group, facing camera (sorry we didn't get their names, but we think they were FBI men). Below, another section of the speakers' table. From left, Frederick Koster, pres. Cal. Barrel Co.; J. L. Cauthorn, publisher, S. F. News; Capt. A. B. Court, inspector of naval materials; Clarence Lindner, publisher, S. F. Examiner; Ralph W. Robey, business editor, Newsweek; H. D. Collier, pres. Standard Oil Co.; Fredk. C. Crawford, pres. Thompson Products, Inc. and N.A.M. board chairman; Lt. Gen. Delos C. Emmons, Western Defense Command; A. W. Eames, pres. California Packing Corp. and regional v.p. of N.A.M.; Robt. Gaylord, N.A.M. pres. Lower left table, from left: Walter Johnson, Paul Loring, Carl Bolton, Cliff Sayre, Harry Gunetti, all of Joshua Hendy Iron Works. Lower right-hand corner, California Packing Corp. group. Left to right, beginning with Wilmet Rogers (facing camera), Irving Granicher, Roy Pratt, Geo. R. Ward, Gus Chick, Roy Lasch, R. E. Sanborn, A. W. Ford, Stanley Powell.





ANOTHER SAN FRANCISCO N.A.M. SCENE. Top row (speakers' table), from left: Robt. Gaylord, pres. N.A.M.; Chas. E. Moore, pres. Joshua Hendy Iron Works; Rear Admiral Geo. F. Hussey, Jr.; Lt. (jg) H. M. Philpott, Navy chaplain; CPO J. M. Suipes, USN; Eric Bergeson, technician 4/c.; J. D. Zellerbach, natl. v.p. of N.A.M. and pres. Crown-Zellerbach Corp.; Walter B. Weisenberger, exec. v.p., N.A.M.; Rear Admiral J. F. Hatch. Next below is a Crown-Zellerbach group. From left corner: Roney Noonan, G. J. Ticoulat, Ralph Buns, Al Bennett; Bob Kimberlin, Reed Hunt, E. R. Knauf, Dan Galen, Dick Shephard, R. A. McDonald. Next installment of speakers' table: Stanley Pedder, pres. Emeryville Chemical Company; Alex de Bretteville, v.p. Spreckels Sugar Co.; Marshall P. Madison, attorney; Stephen Bechtel, pres. W. A. Bechtel Co.; Chas. Kendrick, pres. Schlage Lock Co.; Col. Fred C. Foy, director, Purchases Div. War Dept.; James A. Emery, genl. counsel N.A.M.; Frederick Koster, pres. Cal. Barrel Co.; Jas. Cauthorn, publisher, San Francisco News; lower left-hand corner table (Standard Oil): E. G. Lawson (in corner, but not behind the 8-ball), E. A. Waite, B. W. Letcher, C. T. Ferrer, H. C. Judd, R. C. Stoner, T. S. Petersen. Lower right-hand corner (Joshua Hendy), around the table, from left: Robt. Mann, L. E. Jeffrey, Moses Levit, Felix Kahn, Eugene Elkus, Jr., Lt. Comdr. Southall, Capt. E. Almy, Rear Admiral M. S. Tisdale (commandant, Mare Island Navy Yard), Wallace Johnson.

Additional Marinship Job

An 80 per cent increase in the work on six high speed 10,000 h.p. tankers under construction at the Marinship Yard at Sausalito, Calif., is called for by a new contract for special installations converting the ships from regular tankers to Navy oilers.

Wood-Waste Refrigerators

Compressed wood freezer units and refrigerators, made from the waste from lumber mills will be made by Chapman Brothers of Corvallis, Oregon, as soon as wartime restrictions are relaxed. They propose to build a \$330,000 plant.

A Mining Front

A proposal that Bureaus of Mines of the 11 Western states organize informally to protect the mining industry's wartime gains is being circulated by Jay Carpenter, chief of the Nevada State Bureau of Mines, on behalf of Gov. E. P. Carville of Nevada.

Charging For The Check-Off

Why should not management charge a collection fee for the check-offs? This question for management's consideration was asked by Harvey Crowe, associate counsel of the N.A.M., at the N.A.M. Pacific Institute of Industrial Relations.

The War Labor Board has ordered the check-off despite state laws forbidding deductions from wages, Miller said, but management seems to like the check-off because it keeps the business agent out of the plant. On the other hand, most employees would prefer to pay their own union dues, he reported.

Ontario Flatiron Production Approved

Production of 421,500 electric flatirons by G-E's hotpoint plant at Ontario, California, is the first allocation made to the West Coast area under WPB's national program for 2,000,000 electric irons, and the largest allocation in the country to date. Production schedules call for 50,000 irons the first three months, 200,000 the next quarter and the balance in the following quarter. Only 90 workers, 60 of them women, will be required. They will be sold retail without priorities or ration certificates, at the pre-war price.

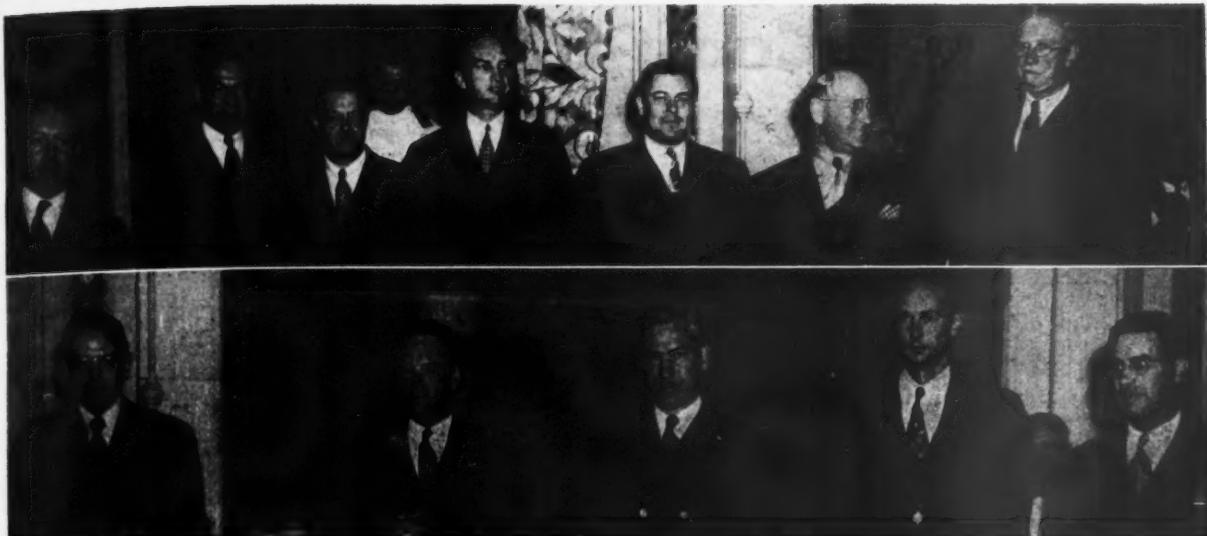
Labor Needs Of West Coast Foundries

Seventy-four Pacific Coast gray iron foundries, a survey of the Gray Iron Founders Society shows, need an additional 919 workers to keep important production moving. That many more workers would raise employment in the 90 foundries which reported from the Pacific Coast to 7,395.

Only 40 Pacific Coast foundries reported that they have been able to keep up with the demand for castings; and 14 are revealed to be "down" for the duration or longer as a result of the manpower pinch limitation orders, or for other reasons.

SCATTERED GROUPS AT THE LOS ANGELES N.A.M. BANQUET. Top picture, left group: Mrs. V. C. Kingman, Jr., v.p., Bank of America, Mrs. M. B. Pendleton. At right: J. G. Shipman, C. R. Lewis, Anthony S. Musatti, all of Southern Pacific. Middle picture, standing: Ralph Robey, business editor, Newsweek; Captain Gerry, USN; Lt. Comdr. Seay; T. T. Arden, pres. Grayson Heat Co. Ltd. and pres. Aircraft Parts Mfrs. Assn. Seated: S & M Lamp Co. group: Albert Varenhorst, Barney DeRamus, Jim Shirreffs (pres.), Joe Gardner. Lower picture, left group: E. R. Braley, J. A. Wilson, E. B. Camp, B. J. Beitzman, J. W. Stophel, Goodyear Tire and Rubber Co. (one man's face invisible). Right group: Frank L. Varney, Frank L. Varney Company (leaning toward left, facing away from camera), Geo. E. Baker, Long Beach city engineer; Clyde H. Garwood Jr., industrial mgr., Long Beach C. of C.; Geo. Toll, U. S. Employment Sec.





THE BRASS HATS AT LOS ANGELES. Top row: T. T. Arden, pres. Aircraft Parts Mfrs. Assn.; Jas. R. McIntosh, gen. counsel, War Contract Price Adjustment Board; Ralph Pryne, Pryne & Co.; J. D. Greensward, asst. treas. Allis-Chalmers Mfg. Co.; Boyd H. Gibbons, Boyd H. Gibbons Company; Louis M. Dreves, deputy regional director WPA; James A. Emery, genl. counsel N.A.M. Second row: R. E. Untereiner, assoc. economist, N.A.M.; L. N. Slater, pres. Western Pipe & Steel; Lt. (jg) M. R. Merryfield; Lucien Shaw, asst. to the pres., Lockheed Aircraft; H. E. Whittemore, pres. San Diego Employers Assn. Below, top picture: Mayor Fletcher Bowron; Major Main, Col. Harmon, district chief, San Francisco Ordnance District; Rear Admiral Jos. De Frees; Robt. Gaylord, pres. N.A.M.; J. A. Hartley, pres. Braun Corporation and chairman of board, Merchants & Mfrs. Assn. Middle picture: Sgt. Gorsline; Phil D. Holle, Southern Cal. mgr. N.A.M.; Geo. R. Langlois, Pac. Coast mgr., N.A.M. E. C. Hummel, v.p. Utility Electric Steel Foundry, pres. Metal Trades Mfrs. Assn. of Sou. Cal.; E. S. Dulin, pres. Byron-Jackson Company. Bottom picture: Paul Shoup, pres. Merchants & Mfrs. Assn.; Walter B. Weisenburger, exec. v.p., N.A.M.; K. T. Norris, pres. Norris Stamping & Mfg. Co.; Col. Fred C. Foy; Brig. Gen. D. F. Stace, F. C. Crawford, board chairman, N.A.M.

N.A.M. Analyzes Its "Selling Labor" Plan

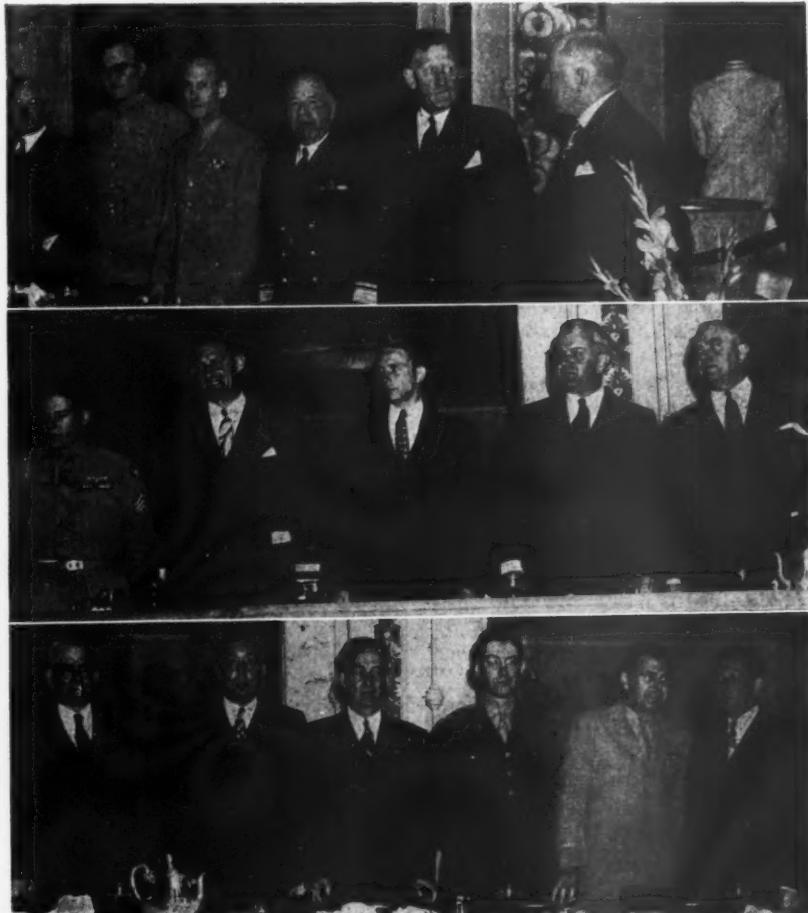
Monday morning quarterbacking on the N.A.M. mass meeting in Los Angeles for war workers to sell them on what management of free enterprise has to offer labor is that Fred Crawford, N.A.M.'s human dynamo, got his idea over quite well—and then spoiled it by talking too long.

Reaction seemed to be a bit cool when he said management didn't like to fire people and cut wages, but picked up OK on the statement about the great need for unity to provide wages for all. N.A.M. sent out a questionnaire to those present to learn just how people liked the idea of such a meeting in the first place, and what portions of the program they preferred. Results are being tabulated.

Incidentally, it is understood that Los Angeles was the only city on the coast willing to take on such a meeting. Los Angeles took the attitude that it was a good idea, so let's see whether we get booed, laughed at, or what.

Decision Against Negroes

A decision holding that the International Brotherhood of Boilermakers, Ship-builders and Helpers (who have been requiring negroes to join "auxiliary unions") are not required to admit negroes to full membership in the main union, Superior Judge Mullins of San Francisco held that "the power to require the admission of a person in any way objectionable to the society is repugnant to the scheme of an organization."



First Pacific Coast Factory For Insulated Magnet Wire . . .

PACIFIC COAST developments in automotive, aviation, radio, electronic and other manufacturing have resulted in a demand for insulated magnet wire. This has led to the establishment of the first factory on the coast manufacturing a complete line of this type of copper wire, that of the Essex Wire Corporation of California at Anaheim. The old Anaheim Sugar Company property was taken over and remodeled and additional buildings erected, giving the company more than 38,000 square feet of manufacturing area.

Their product is a precision wire designed for use in electric motors and transformers. The parent Essex company has been occupied largely with supplying the automotive industry, and if motor starters and generators were to be built in the West after the war this alone would provide a good market for the Essex items manufactured out here. Aircraft developments also promise another large outlet. Household appliances, such as food-mixers, vacuum cleaners, electric fans, refrigerator motors and door bell electric mechanisms are additional opportunities for the use of specialized copper wire.

Heading up the new organization as president and general manager is C. F. Bowers, president of Tri-State Supply Corporations of Los Angeles, San Francisco and Seattle, who have been distributing eastern-made Essex wire. Robert W. Mungall, chief engineer and plant manager, was formerly with the wire division of G-E, and also laid out and constructed a large mill for International General Electric which was sold to the Russian Soviet Government.

In the copper drawing portion of the new Essex mill, rod is broken down from $\frac{3}{8}$ -inch or $\frac{5}{16}$ -inch diameter to all gauges ranging from solid No. 8 to No. 42 B&S gauge (.0025 inch), by going through a large horizontal breakdown mill of multiple die combinations, pulled cold, and annealed following that series of operations. Medium wire drawing through diamond dies as well as fine wire drawing is carried on in succession.

Beside wire pulling or drawing equipment and all of its accessories, the plant at Anaheim has a twin setup of medium wire rolling machines making it possible to roll up to $\frac{1}{2}$ inch strips of rectangular wire or its companion product square wire which are so extensively used in power transformers and large specially designed generators and charging mechanisms.

To assure all heavy wire of flexibility of usage by the manufacturers of electronic

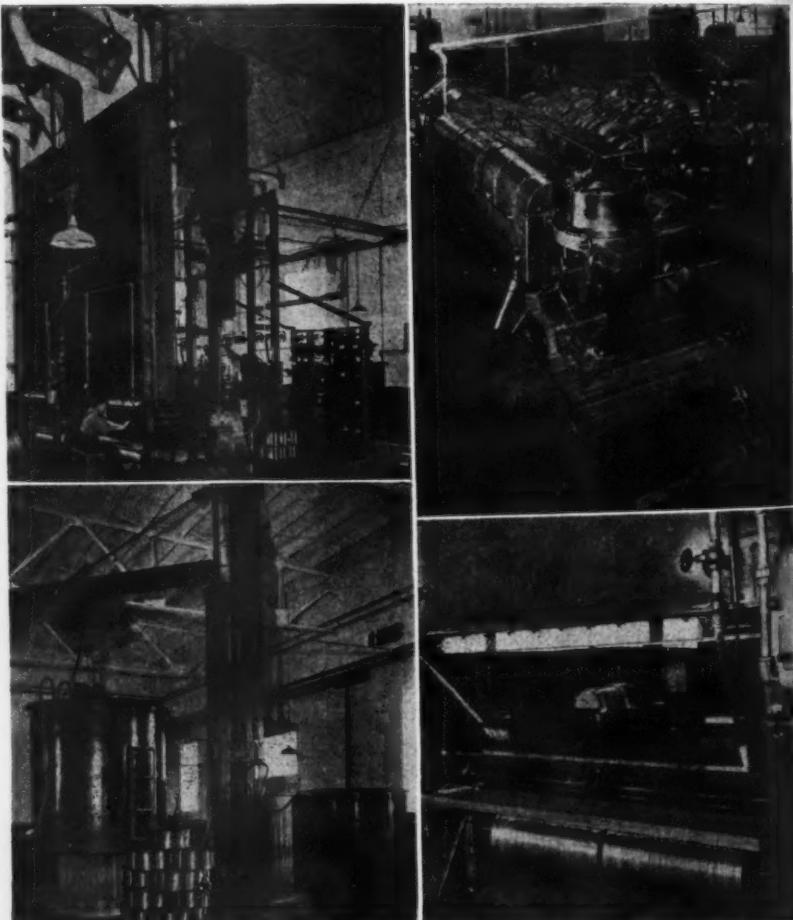
materials, Essex has installed the latest type of "bell" annealing furnace which produces a "dead soft" copper wire without any possibility of oxidization. This is accomplished by introducing into the furnace unit an atmosphere of natural gas manufactured while the annealing process is being carried on from "combusted" natural gas or more commonly known as "city gas."

The electric furnace for drying enamel is one of the outstanding features of the plant. Medium and fine wires pass through a bath of enamel and then through electric enamel ovens, the thickness of the film and the number of coats determining the dielectric properties contained in the wire product.

In the newly constructed enameling room, equipment has been installed for turning out the more popular sizes of

round magnet wire treated with the resinous enamel process that has been newly introduced to the trade but already widely accepted because of its extreme durability, evenness of coating and resistance to strong attacking solvents. It is a polyvinyl acetate type of resin which polymerizes when baked at high controlled temperatures. The wire's economy in winding space makes it important in electronics.

Because of the Essex California plant's ability to serve requirements often within a few day's time, it was necessary to put in an after-bake or aging oven. This is a large device whereby wire is cured for a period of 24 hours at a medium temperature, thereby "aging" the oleo-resinous coating so as to prevent too "green" a wire from being introduced to a coil for treatment where solvents may be reactive to the insulation.



• Top left, round wire undergoes resin application in this bank of heavy applicators and furnaces. Top right, wire drawing to finer sizes. Lower left, electric annealing furnace. Lower right, applicator controlling the outside diameter of insulation.

West Gets Action on War Contract Mix-up

Officials Respond to United Approach; Nelson's Coming Coast Visit Should Promote Cooperation

WASHINGTON, D. C.—Apparently you people out there have really raised enough hell lately to wake up even these people here who are absorbed in invasion and the coming election. If you could just keep on raising enough of a similar kind of hell more or less continuously, and tuned to the needs of the various conditions and the different situations that arise you might eventually convince them that the Pacific Slope has grown up, even if it is a frontier, and that it means what it says when it says things, and that it does not propose to be treated as a suppliant who comes to the back door, hat in hand.

One of your worst faults collectively is that your approach to Washington often is like that of the country boy when he comes to the Big City. If you will once get it thoroughly through your collective head that Washington takes people, places and things virtually at their own valuation you might make Washington feel that you are essentially just as important to Washington as any other section that represents a third and more of the United States.

You people are not what one would call bashful, but you are rather bedazzled by what you think is Washington, and most of you, except men like Kaiser and his type, don't hide that the glare bothers you.

They really knew so little here about your troubles with sudden contracts and labor deficits and housing lacks and the general chaos and confusion that apparently beset you, that you should not get too excited about the seeming lethargy. It is infinitely farther from Washington to the

Helped to Bring Them Around

Western Industry's leading article in the May issue "Closest Coordination Needed for the Big Drive on Tokyo," calling attention to the manner in which the armed services were placing new "command-contracts" in the West without bothering to get the cooperation of production urgency or manpower priority committees, played a considerable part in the general improvement that has come about in the situation. It helped to convince topside people in Washington that the remonstrances of WPB and WMC officials from the West Coast were not idle talk.

By ARNOLD KRUCKMAN

Pacific Coast, than it is from the Pacific Coast to Washington.

It is the difference in the psychological mileage that constantly makes us old timers here from the West wonder about the almost incredible lack of understanding about the West and the whole Pacific area even in more than normally well-informed quarters. This reporter seriously doubts if even the White House really has a conscious realization of what is meant by the West Slope and the Pacific area.

Yes, of course, these Easterners have all the encyclopedic facts such as you might find in George Malone's monumental work; but they don't really know what the real West is. You often doubt, when you talk about irrigation and reclamation to those placed in the highest seats of the mighty, whether they really know that water does not run up hill.

Team Work Begins

You are infinitely fortunate in one change: with probably one solitary exception the representatives of the Chambers of Commerce, and similar organizations of the West Slope, now really work together. He may not be the reason, but since Frank E. Marsh has been down on Fourteenth Street in the San Francisco Chamber of Commerce headquarters the men from Seattle, Portland, Sacramento, San Diego, and occasionally Los Angeles, get together frequently and swap facts and fancies.

Some of it unquestionably must be due to the genial man from San Diego, Robert Hays, who started his career here last fall by making it clear he would work for the whole West Slope as well as for San Diego. These men also have aroused the Western Congressional delegation to a sense of mutuality and kinship, and there are lively signs that the Chamber of Commerce men and the others not in Government will form a closer liaison with the Congressional folk on the Hill.

When these people on the Hill have once realized that they are human, as well as that they are the chosen upon whom the accolade of the people's vote has fallen, they are fine folk to know.

This reporter's cup of content would be almost full, so far as this phase of Washington life is concerned, if Salt Lake City's Chamber of Commerce, and the Chamber of Commerce of Phoenix, and one or two more Chambers of Commerce

One of the best-informed writers at the Nation's Capital, Arnold Kruckman, presents each month authoritative comments on political developments and their practical application to industry of the West. Any reader who wishes additional information may write to him directly, using business letterhead, at 1120 Vermont Avenue, N.W., Washington, D.C. Inquiries will be answered free of charge. You also are invited to contact him personally in Washington. Copies of pending congressional bills may also be obtained free of charge.

on the West Slope, would arrange representation here. When that happens we will be on our way in an inclusively big way.

The effect of team work is apparent in the action that has been taken about your contract and manpower problems. A representative delegation of the Western Congressional group went over to the White House and had a long talk with Fred M. Vinson, Chairman of the Office of Economic Stabilization.

Your area, of course, is not eligible for new contracts in the usual way because you presumably lack manpower. But when some of your representative folk were here recently they stressed emphatically that you could take care of all manpower requirements.

Screening The Contracts

This story does not jibe with other stories we get from Army and Navy and other sources, but it has generally been assumed that you can lick that problem yourself; so Washington takes it for granted that you should be put back in the normal contract belt, as it were. The net result of the discussion with Vinson was that he was urged to authorize all procurement agencies of all Government units to send bid invitations to West Slope industrial units through the West Slope offices of the agencies.

This arrangement will obviously permit the West Slope nerve centers to screen the contracts that may come to the West Slope, and will put some order into the situation that has been so sudden and so chaotic. Congressman Henry M. Jackson, of Washington, who is a member of Patman's Small Business Committee, had a special meeting with Vinson and apparently succeeded in impressing upon him the need of vigorous action in order to protect the small business units in connection with all this turmoil.

It looks as though the amendment to the Byrnes Directive — issued by "Assistant President" James F. Byrnes — may be

promulgated. At this writing it has not been issued, and the Congressional delegation is planning another visit to the White House. The effect of the amendment would be to exempt the West Coast area from the restrictions on placing new Government contracts in critical areas.

The need for it seems so logical that it does not seem it would be easy for Messrs. Byrnes and Vinson to deny it. It would bring order out of the chaos as it now exists out there, and it would enable the thousands of smaller businesses to get back in swing. The smaller business phase has been of particular interest to the Los Angeles Chamber of Commerce people. It is the one objective in which the Los Angeles Chamber of Commerce group has worked with the rest of the West Slope.

Manpower Problem

Here in Washington they say you are very short of manpower. But when your own representatives come to town they tell us that is not true. We are told the main trouble is that the manpower—the people—will only work in certain areas because they live in those areas and have ranches and orchards and groves and other businesses which are their permanent interests, while the war work is an incident.

They are willing to do it while it is within easy reach of their homes, but they will not migrate to other parts of the West Slope; and thus you have the situation of actual shortage in one locality, while in another, less than 100 miles away, there are many people who have no war work and would be able to do war work, but will not move to the place where their services would be useful.

We are told that Navy demands that you produce 35,000 workers for docks and for ship repairs and for similar jobs by January 1. Some one here, presumably a Los Angeles Chamber of Commerce spokesman, prepared a statement for publication which charged that the war on the Pacific was being forced to a negotiated peace because men are not willing to do the Navy work.

The Navy qualified the proposed statement by saying it might be true that this would be a correct picture a year hence if there were no great change in the labor situation. Most of us feel that such presentation of the labor problem is poor psychology, and rather questionable patriotism.

We feel there are the germs of a solution of most labor problems in the new WMC priority referral program if the program could be applied in the spirit of the original formal order. When it is actually made to work there is enough compulsion in the regulation to give it vitality; and with the right kind of inspiring leadership it could be made to work in the voluntary sense which the WMC people emphasize so

much. The trouble is there has been no real leadership.

Apparently what makes the plan drag and limp is the influence of the labor unions. Their leaders have greeted the program with paens of praise. The most dominant influence in WMC—and probably in most other agencies—are the labor unions. Here in Washington it is difficult to settle an individual labor problem unless the worker is a member of a union. Even Government officials will frankly tell you it is almost hopeless to get Government action unless you are represented by a labor union.

Donald Nelson's Coast Trip

At this moment no one here seems to know where or how the Navy is to get the 35,000 men it says it needs for its work on the Pacific Coast. It would be gratifying if the Coast could work out the essentials of the answer on its own. It would be particularly pat if the solution could be offered by the time Donald Nelson arrives on the Coast. We are told that he will be out there in July, probably in the earlier part of the month.

It is the plan to persuade him to start his trip with an inspection of the region around San Diego, and then to travel northward with a stop in every place where there is war activity. If the program is accepted by Nelson as it is outlined he will make his longest stops in Los Angeles, San Francisco, Portland and Seattle.

This survey should give him an opportunity to get acquainted with the people who make things move in the whole area, and should give the people out there a fine chance to get thoroughly acquainted with Nelson. There are many misconceptions abroad here about the West Coast and the people of the West Coast, and Nelson himself is not free of them.

Easterners Need Educating

Nelson, however, offers you the advantage of friendly sympathy. He has the idea that much of the future of this country will stem from the West Slope. Before the War he planned to establish one of the main divisions of the Sears Roebuck organization out there. Nelson cannot do the whole job for you in WPB and with the rest of the war agencies, but his prestige is great and he speaks with tremendous influence to many millions of people, especially to the people who operate the business and industrial machinery of the country. If you sell Nelson on the needs of the Western war machine, and if you convince him of the great destiny of the West, you will help your cause tremendously.

We Westerners are constantly startled by the utter lack of understanding among presumably well-informed Easterners about the future of the Western area. For instance, the other night this reporter sat among a group of people who help make

the economy of the East function. Most of them had been in the West, but their visits had been very casual and very fleeting. They had heard Westerners themselves describe their own country as the frontier, with a sparse population and with the needs of a frontier country. At least it seemed to the Easterners that this was what the Westerners meant.

When some of us began to paint the picture of the West as we saw it, they were politely interested but obviously skeptical. One of the irritating experiences the Westerner never quite grows used to is the sense that these Eastern people take what we say with considerably more than a grain of salt. We are regarded as congenital exaggerators.

A particularly striking fact is that they do not realize the colossal majority of the world's population abuts upon the Pacific. Even when they have a dim glimmering, they almost invariably assume that this vast population is so utterly poor, and so low in its standards of life, that it offers no hope to us as a potential customer for any of our services and products.

Abysmal Ignorance

In their minds it is all settled that the Geneva steel plant must be closed and dismantled, and that there is no postwar use for the aluminum plants in the Pacific Northwest and elsewhere. In other words, they feel after we have done our job in supporting the campaign in the Pacific we must shut up shop and go back to the activities which occupied us before the war. They regard China as utterly impoverished, and all of Asia as a continent of barbarous people with the most primitive wants. Most of these Eastern people of more than average education and intelligence have not the faintest idea about the advances in China the past 25 or 30 years, and they have never heard about the post war plans the modern Chinese have blueprinted for their vast country.

When you brush up against this abysmal ignorance even here in Washington you realize why the British have been able to establish four banks in Chungking, while we have poured our wealth into China to sustain its existence during this war with Japan, and have not even tried to establish one bank.

They tell us that Americans, probably the American Government itself, does its business in China through these British banks. Americans are usually quite indifferent to the implications of this situation, but the Chinese naturally see in it the fading of American interest after the war and the rise of British trade in postwar Asia.

It is logical to assume the billion of Asiatics will have an urgent desire for these facilities which will make their lives easier and pleasanter; and that they will give us in return some of their vast wealth which we can use to make our lives richer.



(U. S. Signal Corps Photo)

• After tank destroyers and all types of armored cars are processed, cranes lift them on flat cars for shipping to ports of embarkation.

Richmond Auto Plant Cranes Swing Tanks and Amphibians

MATERIALS handling equipment formerly used by the Ford Motor Company for automobile assembly operations in its plant at Richmond, California, has assisted the Richmond Tank Depot, which now occupies most of the same building, to make its preparation of tanks and other combat vehicles for shipment a straight line operation. Some supplementary equipment had to be installed by Army Ordnance, but in the main the existing cranes and conveyors did the job. The tank depot is operated by Ford under contract with Army Ordnance and under the supervision of Col. K. B. Harmon, district chief of the San Francisco Ordnance District.

The tanks and other vehicles are received on flat cars from the various manufacturers. They are then unloaded and modified, equipped, stored in the yard against future shipment, or else prepared immediately for shipment to the combat areas or to camps in this country.

Spur tracks run the full length of the craneway, so the tanks can be lifted off the

cars or put back again by using one or both of the overhead cranes. Their lifting capacity is 15 tons each, so only one of them is needed for a 12-ton amphibian. A medium tank, however, weighs 32 tons, so both cranes have to be used for it, the head rigger giving the crane operators the directions for lifting, lowering, and moving in unison.

Engines or other parts for the modification operation, which arrive at the plant in box cars, are picked up from the unloading platform and brought to the craneway by a small swing crane of the same type used in combat areas, consisting of a tractor combined with a boom.

Where the overhead cranes are not available for loading the tanks back on the cars, as for example when the vehicles are brought in from the yard, a ramp is used. This consists of two 12 x 18 wooden stringers, carrying a steel track on which angles are welded to prevent slipping, with a bar hooking the two stringers together to prevent spreading under the weight of the

vehicle. The ramp will not permit the vehicle to side-sway or slip.

There is also a 7-ton gantry crane running along a deep-water dock outside the building, formerly used for loading automobiles into ships that came alongside. The gantry is now employed mostly for handling the boxes of stock parts, weighing 50 to 150 lbs., that are stored inside the vehicles, and for loading 3-ton or 4-ton vehicles, gun carriages, etc.

On occasion landing ship tanks have come alongside and the light, medium or amphibian tanks are swung aboard. This operation requires a special 30-ton crane mounted on a barge, known as a Haviside crane from the name of the firm providing the service for shippers all around San Francisco Bay.

The preparing of tanks includes rust-proofing, use of a dehydrating agent where necessary, spraying exteriors with a protective coating, draining water from amphibians, draining gasoline tanks, disconnecting and charging batteries, checking

(Continued on Page 36)

radios, assembling and boxing sets of spare parts, installing control cables and other services that may be needed. The control cables are used for steering tanks into place in the holds of ships, to get them in such a position as there will be no wasted space. Except in rainy weather, most of this servicing is done right on the flat cars, thus saving an unloading operation.

To hold the tanks down on the flat car so they will not shift in transit, chuck blocks and 1½-inch tie rods and dunage are used. The upper end of the tie rod goes into the boogie wheel of the tank and is then bolted and cotter-keyed, while the reverse end goes down into the stake pocket of the flat car and held tight by a double nut.

The conveyor formerly used in the automobile assembly line of the plant now serves to move vehicles along the line as they are being boxed for shipment, while a hoist carries the panels to the point where they are to be nailed to the box frame.

After boxing, the unit is loaded on a small semi-trailer and towed by a truck out into the storage yard where a crane swings the box to the storage position. The boxes are always handled by a double hook to avoid the danger of the box collapsing. The crane that swings them from the trailer to storage also lifts the boxes to the flat car for outgoing shipment.

Fork lift trucks are used in the plant for transporting boxes and cartons, and down the center of the parts stock room runs a slat conveyor to carry the outgoing and incoming parts to or from the bins.

The service provided by the depot has evoked many letters of commendation from army officers and others who have had occasion to become familiar with its efficiency.

This Job Study Tells All

Whether an individual job requires hearing, talking, walking, lifting, and how long, how far, how high, how many times a day is all told in a study of the physical demands of jobs made by the War Manpower Commission and the Permanente Foundation Hospitals, Oakland, California. It is the first step in a scientific approach to the placement of war-disabled men and women on jobs which will be mutually satisfactory to the veteran and the employer.

Approximately 500 jobs and analyses at Richmond Shipyard No. 3, covering everything except clerical and supervisory positions, were studied by a corps of trained observers for both physical demands and environmental factors, such as temperature humidity, toxic conditions, noise, vibration, exposure to moving objects or electrical hazards and association with others in performance of the job.

Authors of the study are Bert Hanman of WMC and Dr. Clifford Kuh for the Permanente Foundation.

Top Management Must Grasp Labor Problem

KEYNOTE of the N.A.M. Pacific Coast Institute on Industrial Relations at Santa Barbara in May was the necessity for top management knowing better what the labor problem is all about, instead of merely railing at conditions and events. This was sounded significantly by several of the principal speakers.

Lloyd Haney, industrial relations director of Spicer Manufacturing Co., Toledo, who spent years on the labor side of the fence before coming over to management, called detailed and specific attention to management's ineptness in labor matters.

Alden G. Roach, president of Consolidated Steel Corporation, Ltd., Los Angeles, in the opening address of the Institute, said that management groups, instead of combining their efforts and working out their common problems, deal separately without even proper consultation with one another, with the result that a union may impose an improper condition on one company and then by precedent force acceptance on the next company with which it deals.

"Industrial management is presented in a rather poor light to the unions because of this lack of cooperation among themselves, and there have been some sorry examples of this in the very recent past," he said. "The same principle of collective bargaining that applies to unions should be applied to industry."

He declared that now, while the field of industrial relations is in a state of flux, is the time to stabilize the relationship between management and labor so that it will become a permanent, useful tool of industrial cooperation.

Frederick C. Crawford, president of

Believe It or Not!

When the War Manpower Commission's Management-Labor Committee was set up, every shade of thinking was represented, from the "leftest of the lefts" on the labor side to the most reactionary of reactionaries on the management side.

First meetings were rather frosty; some of the committee would hardly be seen in the same elevator, much less speak to each other. Among the group were "Dutch" Kindleberger, president of North American Aviation, and "Slim" Connolly, the CIO official prominent in the bitter strike at North American in 1941.

Forced to work together, committee members found that Nazis and Japs were the only people they had time to be sore at. And now Slim and Dutch ride from Los Angeles to meetings in San Francisco together in Dutch's plane.

Thompson Products, Inc., and N.A.M. board chairman, told a moving tale of management-labor cooperation worked out in his company through regarding employees as human beings, not raw material.

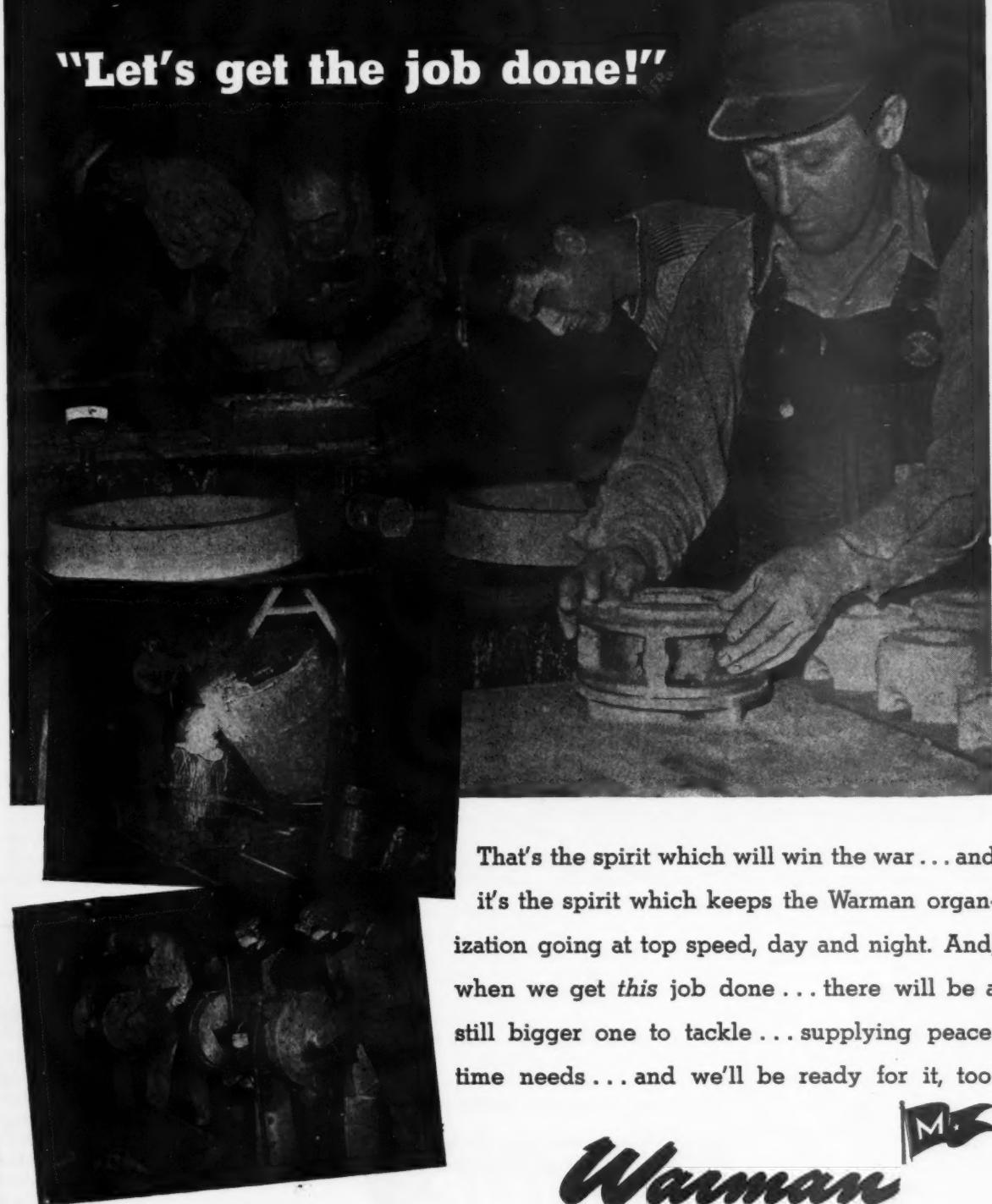
Robert Gaylord, N.A.M. president, who heads up the Ingersoll Milling Machine Company, explained the profit-sharing plan of his company (25 per cent of all earnings go to employees now in profit-sharing dividends, in ordinary times 10-15 per cent), and the enlightened policy which has kept Ingersoll an open shop for many years despite efforts to unionize it.

Adequate understanding of the post-war problem of employment readjustment is sorely needed, it was declared by Alexander R. Heron, director of the California Reemployment and Readjustment Commission. The veteran will have the preference in employment, but will have a terrific handicap in lack of skill compared to the man who has taken his place. The war workers consequently will develop a psychological resentment against the veteran, and the former must realize the justice of his displacement, while the returning veteran must learn to accept the leadership of those who worked while he was gone.

In addition to more than a hundred industrial relations and personnel managers and a few heads of companies from California, there were three representatives from Oregon, five from Washington, and three from Utah.

Conference leaders and their topics were the following: Don A. Ackerman, management consultant, McKinsey & Company, San Francisco, personnel problems of the transition period; Lloyd J. Haney, director of industrial relations, Spicer Manufacturing Corp., Toledo, Ohio, negotiating and administering labor contracts; David F. Jackey, University of California Los Angeles, developing supervisory management; Dr. Rutherford T. Johnstone, Golden State Hospital, Los Angeles, industrial health and safety; Lambert H. Miller, N.A.M. associate counsel, government's role in industrial relations; H. O. Roberts, personnel director, Servel, Inc., Evansville, Indiana, creating a company's labor relations program; Austin Ross, personnel manager, General Cable Corporation, Emeryville, Calif., labor supply and utilization; Kenneth H. Shaffer, general manager, industrial relations department, Standard Oil Company of California, veteran re-employment problems; Henry K. Swenerton, director of wage administration, Consolidated Vultee Aircraft Corp., Vultee Division, wage administration problems.

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Practical Pointers on Employing Veterans

To avoid the possibility of complaints from employees who will be displaced by returning veterans, Standard Oil Company of California gives new employees a statement that they are being hired subject to the return of veterans.

Kenneth H. Shaffer, Standard's manager of industrial relations, who reported this to the N.A.M. Pacific Institute of

Public Relations, said some employers tell all new employees that they are on a temporary basis, while others have their new men sign a waiver of right to reinstatement, a procedure which he said is probably not legal.

From present indications, he said, Selective Service, who are charged with the responsibility for getting men back into employment after the war, will not take

"no" from industry about like status and pay, and will not accept the excuse that the job is no longer there.

Other points brought out by Mr. Shaffer were:

Selective Service says a veteran doesn't have to join a union; the union cannot enforce its contract against veterans.

If the veteran is no longer capable of holding his job on account of disability, his former employer is not required to take him back.

Discharging a non-veteran with greater seniority to make room for a veteran is Selective Service thinking, not the law itself or court rulings.

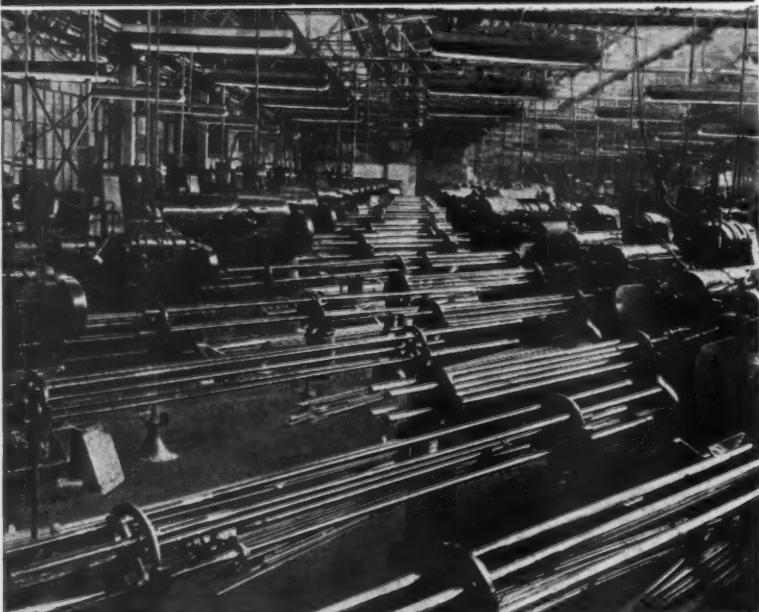
If your plant has shrunk so you have nothing but veterans in your employ, and a veteran came in 46 days after he was mustered out, and you had to discharge another veteran with shorter service to make room for him, the discharged man might have a court action against you.

The Regional War Labor Board at San Francisco has left the door wide open so the veteran can get accrual benefits, i.e., they have given him opportunity to get the job he would have had if he had not gone into service, by providing that employers may give seniority status, all rights to pay, insurance and other benefits without Board approval.

If a man is hired on the thirty-ninth day, but does not show up for work on the fortieth day, spends the next ten days looking for a better job and then comes back, the employer is not required to employ him.

The U. S. Attorney General rendered a little-known opinion last year that "war service" appointees to civilian jobs with the government who are drafted need not be reinstated to their jobs upon discharge from the armed forces, because they are temporary employees. Section 8 of the draft law provides for reinstatement of drafted employees who held "other than a temporary position."

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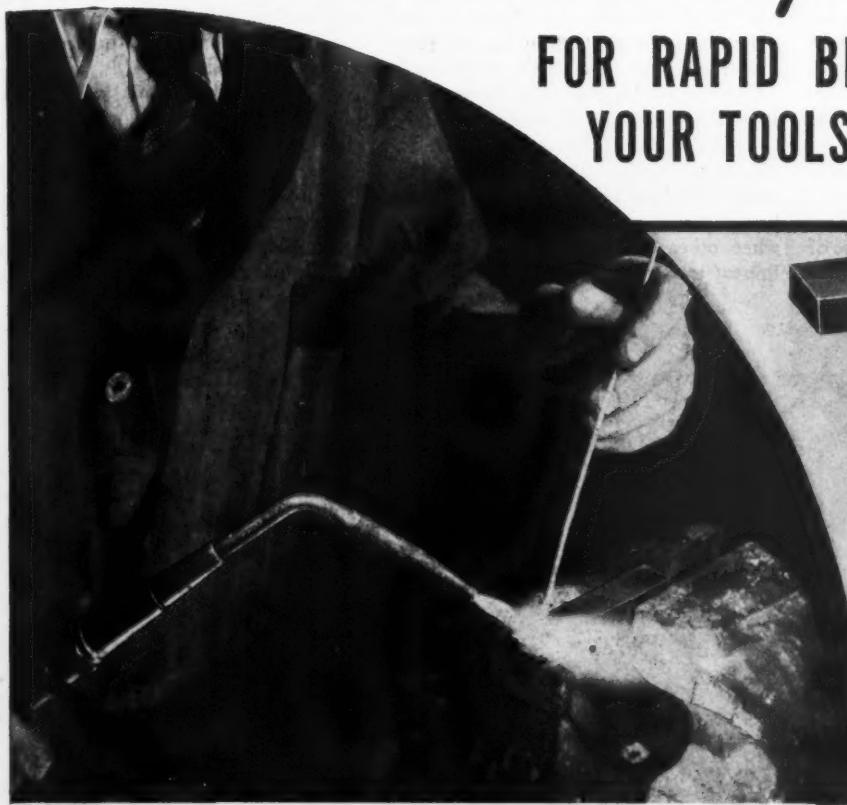
More Pay, Less Work

Employers would find that take-home pay of employees on piece work would be greater than they are taking home now on 48 hours, according to Clarence Marsh, personnel director, Century-Metalcraft Corporation, Los Angeles. Reporting the experience of his company at the N.A.M. Pacific Institute of Industrial Relations, he said their employees would take home 15 per cent more money on 40 hours if they could return to the former incentive basis than they are now doing with 48 hours and overtime.

This was a written plan, with no limits on earnings. It was based on time study, but as the company then was using nothing but permanent molds, it was easy to set up.

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Bonneville Pictures Industrial Opportunity

BONNEVILLE Power Administration, who have a big post-war marketing problem ahead of them, like many other enterprises, have drawn a pattern of possible Northwest agricultural and industrial opportunities, based on the use of hydroelectric power from the government's series of projects on the Columbia River and its tributaries.

It is set forth in a 104-page report entitled "Pacific Northwest Opportunities." This study, which has been about a year in the making, not only recaps a long list of opportunities but also appraises them for

their limitations as well as their promise.

The immediate problem facing Bonneville is to encourage the development of private industries able to utilize its 800,000 kilowatts (\$14,000,000 in annual revenue) now involved in service to war loads subject to cut-back or cancellation. The long range object of the marketing study, according to Paul J. Raver, Bonneville administrator, is a balanced regional development, capable of being served by 1½ million or more additional kilowatts available when other proposed projects are built. Present total supply from Bonneville and

Grand Coulee dams is something over 1.3 million kilowatts.

Promising industries, new or expanding, according to Dr. Raver, include the electro-chemical and electro-metallurgical groups, the chemical fields, such as carbons, hydrocarbons and acids, plastics, phosphates, fertilizers, alloy and other special steels in the metallurgical fields.

The study, which was prepared under the direction of Ivan Bloch, chief of Bonneville's division of industries and resources development, points to a big market in agricultural pumping. It estimates



Opportunities of the Pacific Northwest . . .

that about $3\frac{1}{2}$ million acres additional to the present $4\frac{1}{2}$ million acres now under cultivation in the four Pacific Northwest states are feasible of irrigation, perhaps 2 million by gravity and $1\frac{1}{2}$ million by pumping. This development would require some \$40 million worth of electrical equipment (other than for power generation, transmission and distribution), and some \$25 million worth of pipe, gates, valves and other irrigation equipment.

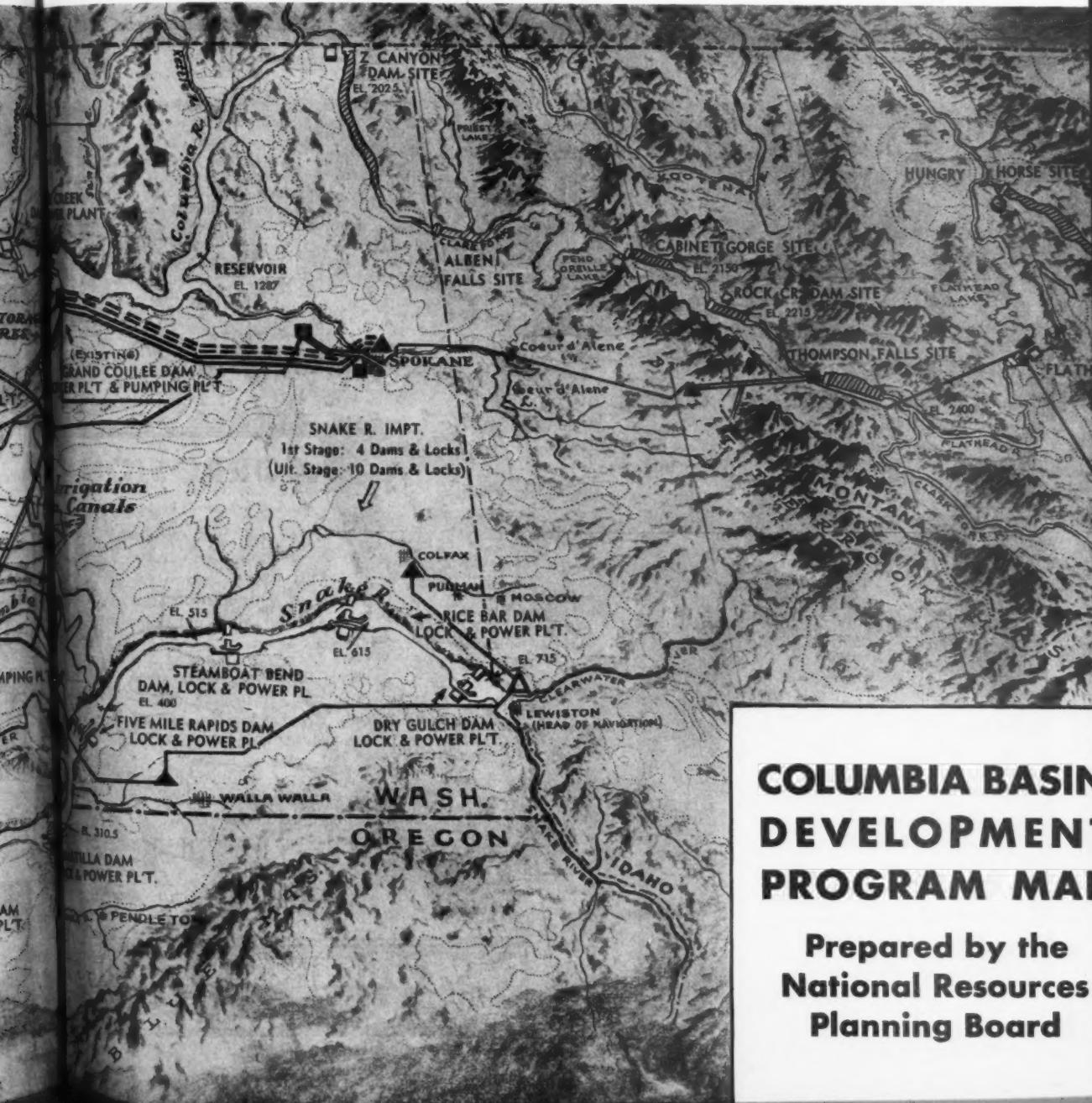
Another great potential power and equipment market listed is electrification of 2,800 miles of railroads in the area, which would ultimately require \$150 mil-

lion in rolling stock and fixed roadside facilities to equip the railroads for electric operation. It is asserted that this cost could be recouped in ten years because of lower operating costs and that at least 40 million barrels of fuel oil or its equivalent in other organic fuels would be saved.

A great future for electric house heating and air conditioning is predicted, and the survey reveals that extensive tests are under way in Longview, Washington, to compare costs of electrically and oil heated homes. A potential of 180,000 electric house heating installations by 1960 is indicated.

To make things as easy as possible for the prospective manufacturer, Bonneville's market experts have compiled three lists of types of industries. The first list contains those industries that are well-developed in the Northwest compared to the nation as a whole. The second list which is quite long, contains those industries that are undeveloped in this region compared to the nation as a whole. The third list contains those industries found commonly in other parts of the United States but that are totally absent in the Northwest.

(Continued on Page 42)



COLUMBIA BASIN DEVELOPMENT PROGRAM MAP

Prepared by the
National Resources
Planning Board

BONNEVILLE (Continued from Page 41)

A summary of some of the information on specific industries is as follows:

ALUMINUM: Annual Northwest capacity, 315,000 tons annually, regional production centers should be developed, including alumina purification, and plants for rolling, extruding, casting and fabricating. (Dr. Raver predicts the industry may employ eventually seven or eight times the present total of 7,500.) Processes should be developed to treat clays to make the area independent of bauxite.

MAGNESIUM: Annual capacity 18,000 tons, dolomite available in inexhaustible quantities, magnesite tonnage should be developed and recovery of magnesium from olivine studied, as it is available in inexhaustible quantities.

IRON AND STEEL: A few deposits will justify small scale iron smelting operations with electric pig iron furnace. Ferroalloy capacity can be expanded to give additional ferrochromium production for eastern shipment. Stainless steel plant producing direct from ore would be possible on basis of available raw materials.

NONFERROUS METALS: Butte district copper output declining, may not last many more years. Metaline district of northeastern Washington has extensive reserves of lead-zinc ore that will warrant increasing ore production, and some authorities believe this district may become a highly important district, but a zinc plant in that locality would be needed at the same time. Lead smelter and refinery located in northeastern Washington or on tidewater would fill a gap in the non-ferrous metallurgical structure of the region. Some non-ferrous manufacturing can be developed in Northwest on at least a small scale.

NON-METALLIC GROUP: Return of building activities with continuation of calcium carbide production will make present capacity in-

adequate, require new plants. Fireclay deposits offer some promise of additional firebrick manufacture when market justifies. China clay exists in important quantities, justifying establishment of pottery operations. Continued development of ceramic industries may be in the heavy clay products. Necessary raw materials for glass fibers available. Possibilities for developing a plant producing abrasives good, particularly in the field involving electric furnace operations. Fused alumina, one of the most promising possibilities when sources of purified alumina becomes available. Possibility of central Oregon production of salines from the alkali lakes sufficiently promising to warrant investigation.

INDUSTRIAL CARBON GROUP: Large potential supplies of coking and noncoking bituminous as well as lower rank sub-bituminous and lignitic coals. A few beds semi-anthracitic. Present regional coking industry not now able to supply carbon for the Northwest electrode carbon needs, but to supply it from oil gas plants would require more gas making capacity than present population can support. Production of "super" cokes as practiced in Europe might be an important factor of increased supply of industrial carbons. Increasing supplies of hydroelectric energy available for new and expanding electro-industries will demand at least concurrent increases in the production of coke and other suitable forms of carbon. Should be possible for the Tacoma and Fernie, B.C., plants and possibly others not yet established to increase their capacity for coke and important chemical by-products, therefore desirable that present coking operations add complete by-product recovery to meet markets as these develop in the field of regional chemical industries. Carbon manufacturing plants for amorphous carbon and graphite electrodes, dry cell batteries, graphite vessels, could be developed.

INDUSTRIAL GAS: Large unutilized sul-

phur resources, including many pyrites deposits and wasted smelter gases.

CHLORINE AND CAUSTIC: Chlorates can be distributed in the national market. Chlorine and caustic can be expanded as needed for local industries.

CALCIUM CARBIDE AND DERIVATIVES: Development of acetic acid, acetic anhydride and cellulose acetate has much in its favor, with all raw materials available, an expanding market for plastics and no western production with which to compete. Nothing to prevent establishing of chlorinated acetylene plants. Vinyl chloride and vinyl acetate resins would be desirable addition for development of plastics manufacture; former can be produced with existing acetylene and hydrogen chloride capacity, while latter would require synthetic acetic acid plant. Synthetic acid, acetone and acetic anhydride derivatives exceptionally good possibilities for development; desirable for the establishment of a cellulose acetate, rayon and plastics industry. Neoprene the best suited synthetic rubber to the region. Cyanide, ammonia and urea most desirable industrial additions to the region. With a cyanide plant and a cyanide unit in connection, only one further step needed to make acrylonitrile for Butan N synthetic rubber, but this unlikely of early development unless alcohol and butadiene production established in the region.

FERTILIZER: Basic raw materials abundantly available, but new fertilizer capacity would have to look to outside markets. Expanded fertilizer consumption in Pacific Northwest largely dependent upon educational campaign for use, improved production and marketing methods and more favorable freight rates.

PLASTICS: Ample supplies of basic materials, but chemical conversion plants needed.

(Continued on Page 44)

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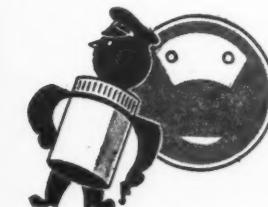
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BONNEVILLE (Continued from Page 42)

Plastics compounding plants must await local source of major chemical raw materials for compounding. Molding and manufacturing plants limited by present apparent markets and lack of several basic chemical plants.

FOREST INDUSTRIES - MECHANICAL GROUP: More scientific forestry practices, such as "tree farms," and "selective logging" being adopted to provide for future raw material supplies. Yearly future cut of Pacific Northwest must be set at about 8 billion feet, the 1940 level, enabling stabilization of mill operations and integrated operations. Future developments will include further remanufacture of semi-finished material now produced in Northwest.

FOREST INDUSTRIES-FIBER AND CHEMICAL GROUP: Area largely dependent upon logs and sawmill waste as raw material. In addition to established pulp mills, defibering

plants using mechanical or explosion processes needed for production of insulating materials and boards. Further chemical processing appears favorable and the most promising fields are acid hydrolysis, leading to the production of ethyl alcohol, plastics, fodder yeast and controlled hydrolysis, leading to a high-grade metallurgical carbon and the production of chemicals suitable for wood preservatives, plastic manufacturing and raw materials for the chemical industry.

AGRICULTURE: Trend toward specialty crops and wider diversification. Increase in food processing establishments for preserving by canning and freezing will necessitate field and orchard expansion. Increase in capacity of manufacturing containers of glass, tin, paper and plastics will be necessary. Secondary processing plants needed, to utilize wastes and by-products. Complete study of textile industry as related to the region will be of great importance.

SWPC Explains Urea Treatment of Wood

Information regarding the use of urea as an aid in binding of lumber and preventing checking during drying has been one of the most popular services the San Francisco regional office of the Smaller War Plants Corporation has been called to provide.

Urea is being used extensively in the chemical seasoning of Douglas fir to prevent checking, but is not so effective in the thicker sizes of oak, for example, as some of the other more expensive chemical agents. SWPC reports that for most bending jobs the method of harnessing the stresses set up is more important than the method of plasticizing wood.

Stock 1½ inches thick has been bent through 180 degrees on an inside radius of five inches, the U. S. Forest Products Laboratory reports, and ¼-inch stock has been similarly bent on a radius of ¾-inch. While the ¾-inch degree of upset is not necessarily the maximum obtainable, according to the laboratory, it will be noted that the ratio of the length of the inside radius to the thickness of the stock is about 3:1 in both instances. Laboratory recommendations are as follows:

Urea-impregnated thermoplastic wood, designated by the laboratory as Uralloy A, is soaked in an aqueous solution of urea, and dried to a moisture content of 10 to 12 per cent. It is then heated to 212 to 220 degrees F. optimum, and thin wood can be twisted to the desired shape easily by hand. Best results will be obtained if after drying, temperature of the wood is raised to the optimum temperature for bending by boiling in the regular urea solution.

Urea plasticization can also be applied to sawdust for making solid sheets or panels. Considerable pressure is needed in the molding operation, and machinery is required. Uralloy A, however, has poor water resistance and also tends to return to a plastic condition when reheated to 212 degrees F.

Urea-formaldehyde thermosetting wood, termed Uralloy C by the laboratory, has considerable resistance to water, because the added chemicals, notably formaldehyde, unite with urea to form a synthetic resin. As soon as this resin is set by heat, the wood assumes a stiffness which is noticeably affected by subsequent heating.

It is soaked the same as Uralloy A, but instead of being dried afterward, is promptly heated by boiling in urea solution and bent in the wet condition, after which it is dried while held to the bent form in an oven kiln, or by simple exposure to air after which it is heated to about 300 degrees to fully polymerize the resin.

Uralloy C is stiffer than normal wood and is considerably harder, but can be readily worked with ordinary woodworking tools.

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Mr. Carswell's new office has recently been opened at 417 Market Street, San Francisco, 5, and has been placed in charge of Mr. E. Harold Biddison, Resident Manager. The telephone number is Exbrook 1048. Additional engineers for sales and service will be added to the San Francisco staff as the work requires. This office is now in a position to render prompt service and furnish full information on the equipment manufactured by the Colby Steel and Engineering Company.

For over twenty years Mr. Carswell has represented the Colby Company on the Atlantic Seaboard, maintaining offices at No. 1 Exchange Place, Jersey City, N. J., and 15 Park Row, New York City. With the experience he and his staff have had with the Colby products, this new arrangement will enable both companies to keep more closely in touch with the owners and operators of the Colby equipment throughout the United States.

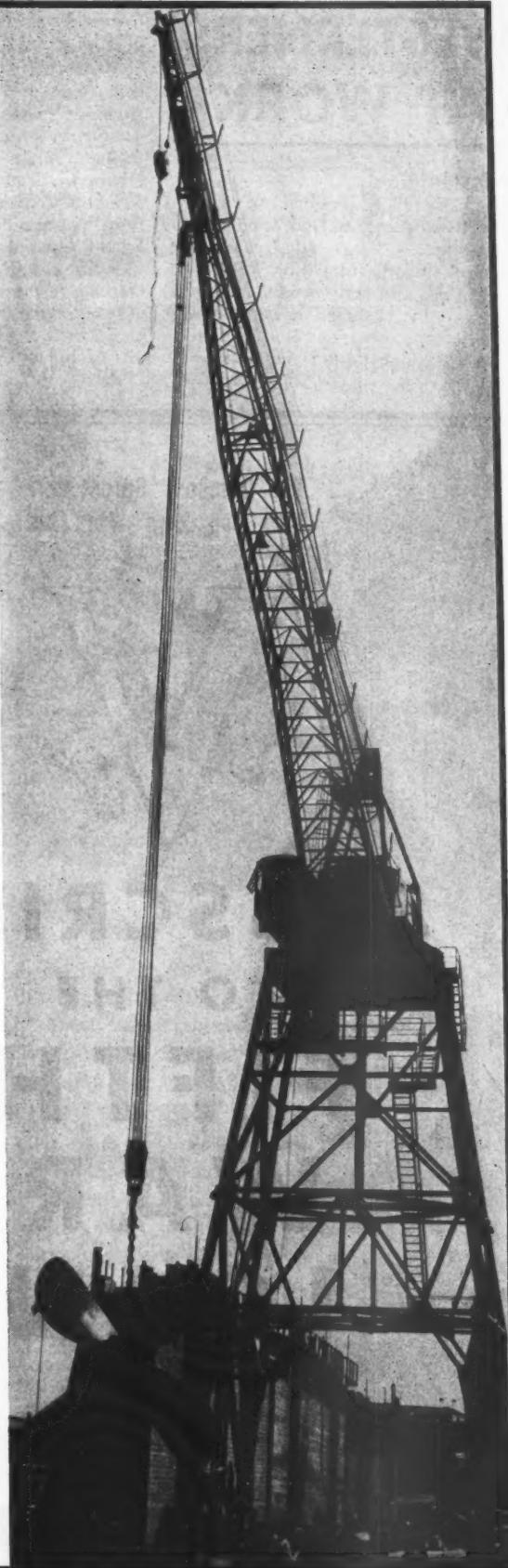
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California

H. McCaughey, president of Vulcan Foundry Company, Oakland, appointed to the gray iron castings industry advisory committee recently formed by WPB. . . . T. M. Price, formerly works manager, Kaiser Co., Inc., Fontana, now vice-president in charge operations Iron and Steel division, headquartering in Oakland;

Frank Backman remains general superintendent Fontana plant, in complete charge of Fontana and Vulcan operations; Tom Hart named assistant general superintendent; George Vrieland, chief consulting engineer, moves to Oakland and J. W. Thompson steps into Hart's shoes as superintendent of the Coke and By-Products Division. . . . Paul W. Case, vice proxy Schukl & Company, Sunnyvale, resigns to form partnership with Amos Swayne, Schukl superintendent, to be known as Case-Swayne Company, packing figs at Fresno. . . . President William A. Coulter of Western Air Lines, Los Angeles, elected president and chairman of board of directors of Inland Air Lines; R. K. Nichols,

formerly Inland Air Lines auditor, elected assistant secretary. . . . Louis M. Dreves, chairman Los Angeles area production urgency committee, appointed Southern California deputy regional director for WPB succeeding Watt L. Moreland. . . . Roger R. Williams, IBM plant superintendent, directs operations since departure of Luther L. Sheppard, resident manager. . . . C. P. Wilson appointed director of new "office of products research" established by California Fruit Growers Exchange. . . . Weller Noble, vice-president and treasurer, Pacific Guano Company, Berkeley, appointed to Fertilizer Industry Advisory Committee to confer and cooperate with OPA. . . . I. F. Dix, WPB priorities chief and formerly vice-president and general manager of the Pacific Telephone & Telegraph Company for the Washington-Idaho territory, promoted to district manager of the War Production Board for Southern California. . . . David Molof will manage new branch plant in Los Angeles for the Silmo Chemical Corporation. . . . E. R. Dickey now manages new drop forging plant for the Aero Contracting Corporation. . . . A. W. Morgan, new factory superintendent for Vultee Field, filling assignment in the absence of H. F. Harbrace. . . . Appointment of E. J. Hallahan as chief resident auditor at the Vultee Field Division, filling the shoes of A. C. Roselle. . . . Lloyd A. Williams, former director of finance for Timm Aircraft Corporation, appointed full-time executive secretary of the district C. E. D. for Los Angeles, taking over new post following preliminary work by Le Roy D. Owen. . . . P. E. Fluor, executive vice-president and general manager of Fluor Corp., Ltd., elected president succeeding J. S. Fluor, Sr., while J. S. Fluor, Jr., takes P. E.'s place. . . . appointment of Clifford R. Nickerson acting manager of the Los Angeles District Office of Division of Motor Transport to replace William C. Klebenow, resigned. . . . A. V. Kipp after 42 years' service as traffic manager for Union Pacific Railroad at Los Angeles retires; succeeded by W. T. Price who was transferred from Denver office. . . . Mrs. Mary S. Jackson, recently appointed Director of Counselling for Consolidated Vultee Aircraft Corporation, is company's first woman executive. . . . Alvin Zwerneman promoted to position of vice president and general sales manager of the Axelson Manufacturing Company. . . . E. Roy L. Payne succeeds the late Daniel W. Payne, his father, as president of Payne Furnace & Supply Company, Inc., and John H. Keber, former manager of wholesale division, now vice-president.

Nevada

F. O. Case, general manager of Basic Magnesium, Inc., at Henderson and Gabbs, appointed chairman of Postwar Planning Committee of the Magnesium Association.

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YOU CAN HELP WIN THIS
War . . .



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STAUFFER CHEMICAL CO.

Utah

Ray Miller, chief mechanic for the Vanadium Corporation of America at Monticello, Utah, was transferred to company's operations at Naturita, Colorado, after the Monticello plant was closed.

Washington

G. L. Chapman, from du Pont's East Chicago insecticide plant, now manager of E. I. du Pont de Nemours & Co., Grasselli chemicals department in Tacoma. . . . Jim Louitt, manager of the Ohio Ferro-Alloys Company and the Coast Carbons Company, joins the staff of the Seattle Chamber's Industrial Department. . . . F. R. Merris, now general manager of Washington Gas and Electric Co., Tacoma.

Associations Elect

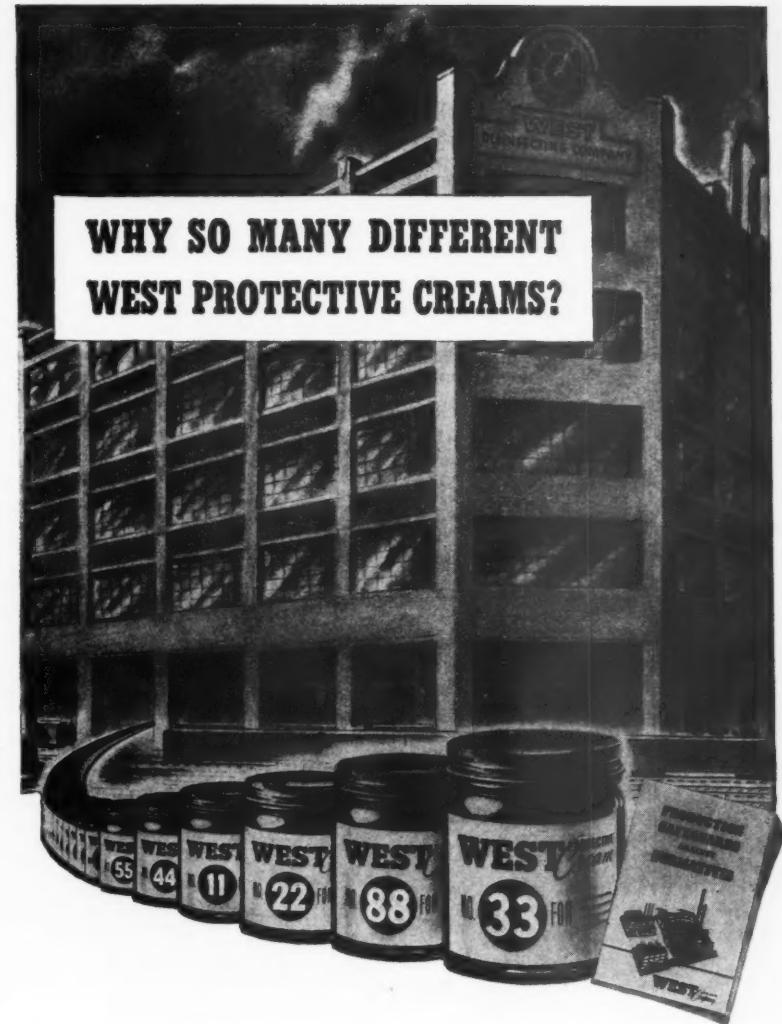
Samuel D. Russell, president of Phoenix Iron Works, Oakland, California, who was elected to a three-year directorship of A. F. A., will represent the West Coast membership.

American Steel Warehouse Association elects new officers: Northern California: Howard M. Tayler, Tayler & Spotswood Co., San Francisco, president and chapter director J. S. Hickinbotham Bros., Stockton, Calif., vice-president; Curtiss Hayden, Dunham-Carrigan & Hayden Co., San Francisco, vice-president; R. D. Cortelyou, San Francisco, secretary; Southern California: E. Jungquist, Percival Steel & Supply Co., Los Angeles, president and chapter director; Wayne Rising, Ducommun Metals & Supply Co., Los Angeles, vice-president; William L. Rawn, R-J-M Co., Los Angeles, vice-president; W. H. Lindberg, Earle M. Jorgensen Co., Los Angeles, secretary-treasurer. Pacific Northwest: E. O. Rauh, Marshall-Wells Co., Portland, president; O. J. Ulrich, Pacific Machinery & Tool Steel Co., Portland, vice-president; H. F. Morrow, Pacific Metal Co., Portland, secretary-treasurer; and S. F. Woodbury, Woodbury & Co., Portland, chapter director. Washington: W. R. Case, Seattle Steel Co., Seattle, president; J. C. Richards, Hunt & Motte Co., Tacoma, vice-president; A. S. Allen, Jr., Seattle Hardware Co., Seattle, secretary-treasurer, and chapter director.

American Foundrymen's Association, Northern California Chapter, elected Ralph C. Noah of San Francisco Iron Foundry, president; Alfred J. Snow of Snow and Galgiani, San Francisco, vice-president; Geo. L. Kennard continued as secretary-treasurer. S. D. Russell, Phoenix Iron Works, Oakland, California, is new director with the Association.

California State Chamber of Commerce elected Harrison S. Robinson, Oakland attorney, president of Board of Directors;

(Continued on Page 48)



The West laboratories, as the result of years of continuous experiments in collaboration with many of the nation's leading industrial physicians, safety engineers and dermatologists, know that a cream which gives adequate protection against one group of irritants may not give an equal degree of protection against another group.

That is why there are so many different West protective cream formulas. Each one has been developed to give protection to the skin against certain specific irritants. Each ingredient in any of the series of West creams has a distinct function in making that particular cream serve the specific purpose for which it is intended.

•Send for the West booklet on Dermatitis which tabulates most of the known skin irritants and recommends which West Protective Cream is best suited for combatting the specific hazard.

WEST DISINFECTING
Company

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WESTERNERS—(Continued from Page 47)

W. C. Mullendore of Los Angeles, executive vice-president of Southern California Edison Company, Ltd., was elected vice-president; Harry A. Mitchell of San Francisco, president, Sacramento Northern Railway, second vice-president and James E. Shelton, Los Angeles, Security First National Bank, third vice-president. Preston Hotchkiss of Los Angeles, Pacific Indemnity Company, elected treasurer; James Mussatti reappointed to office of general manager.

California Prune and Apricot Growers Association re-elect Frank M. Shay, presi-

dent; C. D. Cavallero, general manager, and Ward M. Tarp, secretary.

Pacific Coast Section of the Society of the Plastics Industry, Inc., names Roy L. Peat, Plastic and Die Cast Products Corp., Los Angeles, chairman to succeed J. D. McDonald of the McDonald Manufacturing Company.

Conservation Committee of California Oil Producers elected John B. Sutherland, The Ohio Company, chairman, to succeed Warner Clark of Standard Oil Company of California; Robert M. Allan, Jr., the Superior Oil Company, was elected first vice-chairman, and Henry A. Brett, Union Oil Company, was elected secretary.

**BMI Has Some Ideas
On Postwar Operation**

Basic Magnesium, Inc., has had assurances from Washington that no further reduction beyond the recent 40 per cent cut in operations are planned and on its own account submitted plans to Washington for postwar development.

James R. Robbins, president of BMI and Anaconda Copper Mining Company, has presented four alternative plans for development at Basic after the war. These include fabricating facilities, sales engineering and promotion of the use of magnesium for peacetime products.

Plans are now under consideration for production of sodium and sodium hydroxide at Basic.

To Stay Or Not To Stay

Questioning of 60,000 employees in the 16 major shipyards of the San Francisco Bay area is under way by a force of 300 interviewers to determine their post-war residence and employment intent. The Regional Labor Force Survey, under the direction of Franklyn G. Corker, will then make pilot surveys among the utilities, railroads and large manufacturers and retailers. A 25 per cent sample of total employees will be involved.

More Shells For Kaiser

Increasing demands for artillery shells has resulted in the Kaiser steel mill contract for \$25,000,000 for 8-inch and 155 mm. shells being supplemented by a \$17,000,000 contract for 8-inch shells. As with the first contract, the steel forgings will be produced at Fontana with the finished machining being done at the Denver Ordnance Plant.

Approximately 1,000 workers will be recruited in the Denver area, of whom half to two-thirds may be women, and a sizable training program may be necessary because most of the work will consist of lathe operation.

Southern Calif. Contracts

Indicative of the step-up for greater military action is 126 contracts for war supplies, totaling \$62,905,626 awarded in southern California in May. The work will require 2,349 additional employees. Facility contracts totaled \$41,875,585, for 167 projects. Most of the Navy's \$12,000,000 share in the construction projects approved are for permanent installations representing the continued development of the area as a major naval and maritime base.

Adel In Post-War

Post-war products which Adel Precision Products Corp. in southern California, proposes to make, include an "Alphatron" camera, kitchen tools of stainless steel with plastic handles, a bagless vacuum cleaner, and hydraulic controls.

SPRING METALS MUST BE TOUGHER



Greater loads on military springs mean more exacting heat treatment. This Lindberg furnace is an essential part of California Spring Co.'s own heat treating department. Here metals are heat treated, tempered and tested by new controlled processes—to meet demands never before placed on spring metals.

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How to Negotiate Your Next Labor Contracts Successfully . . .

NO wonder employers have such poor success in negotiating and administering labor contracts, since they pay so little attention to matters that may cost them so much money, was the frank assertion of Lloyd Haney, director of industrial relations for the Spicer Manufacturing Co., Toledo, at the N.A.M. Pacific Coast Institute of Industrial Relations in May.

In view of his long experience as a labor union official previous to becoming a management executive, his views and recommendations aroused considerable interest. He was a local union president and business agent in Minnesota, labor conciliator, state labor commissioner (also, incidentally, Stassen's campaign manager in the governorship race). Here is his advice to management:

Define the company policy on paper. If more employers pursued a plan of stipulating company policy and then enforcing it, they would be happier in their labor relations.

Get the best negotiators available. Too many employers virtually flip a coin to see who will do the negotiating. Attorneys tend to be too technical to do good negotiating, which is an art in itself.

Know some of the fundamentals about labor laws, such as the difference between the Wagner Act and the Wages and Hours Law.

The negotiator should be as familiar with the company as possible. It is surprising how many companies send someone of office-boy status into negotiations and hope for results.

Know the union representatives and their psychology. Know the people intimately on the other side of the table.

Limit the number of your negotiators. Don't try to match a union committee; one man alone representing the company is likely to be better than a group of six or seven; three is a good number. One of these should be a manufacturing man; salesmen or accountants are not desirable because you are meeting with men who are right from the floor of the plant.

It is a mistake to think you can send anyone to the early negotiations and then have the big man pitch in in the middle of things. He can't pick up the thread and bores everyone else by his ignorance. The negotiator should be a big man, even if the time spent in negotiating is largely a sparing match.

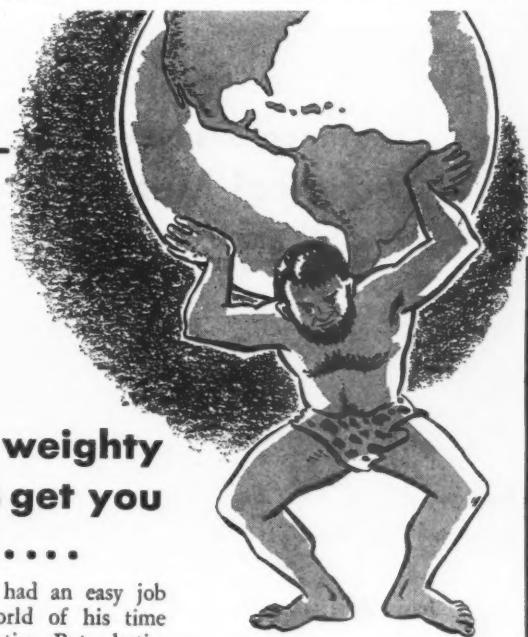
Desirable to have some of your foremen and supervisors to consult with; they know your plant conditions. Put your ideas down in concrete form. Talk to your trade and industrial relations groups.

Prepare a company proposal. Time after time employers simply work on a proposal submitted by labor, and so are immediately put on the defensive.

Keep negotiations open between you and your local union as long as possible. Don't stay on your high horse. Employers often miss the boat by not calling the international officers of the union in if they can't deal with the local committee.

Don't forget the mediators and others who are concerned in labor relations. Employers make a mistake not to call in federal conciliators; many of them can do a good job for the employer, and can get ideas over to the union where the employer himself cannot. War Labor Board has a mediation service. The Army and Navy have officers who handle such matters.

(Continued on Page 50)



don't let weighty problems get you down . . .

Atlas would have had an easy job of it, had the world of his time been made of plastics. But plastics were not to be for the ancients; they were destined to be one of the outstanding achievements of modern science.

The Continental-Diamond line of plastics—in sheets, rods and tubes—has become the standard in dozens of industrial fields. They are no longer used as substitutes, but are eagerly sought for as betterments. Marwood maintains large stocks of Continental-Diamond plastics in its four strategically located Pacific Coast warehouses. If you have a problem involving the replacement of corrosive, weighty or hard-to-get materials, write Marwood concerning the application to your problem of one or more C-D plastics—

CELORON DILECTO VULCOID
MICABOND DILECTENE
DIAMOND VULCANIZED FIBRE

MARWOOD
LIMITED

Pacific Coast Representatives for
Continental-Diamond Fibre Company

SEATTLE PORTLAND SAN FRANCISCO LOS ANGELES

B25

LABOR CONTRACTS (Cont'd. from P. 49)

Know the difference between a union shop and a closed shop. In the former, union membership at time of hiring is not obligatory, but new employees must join in 30 days; in the latter, the new employee must have his card when he applies.

Severance pay: in the east and middle west this is No. 1 on union agenda. Employers ought to have contracts so the government will absorb part of this.

Grievance procedure: union officials are driving to eliminate the foremen in this matter, so that the man must take the steward with him in making his complaint. This is a mistake, because a man should

have the right to talk direct to the foreman.

Termination of a contract: this should be taken to an attorney to ascertain the employer's rights in regard to labor.

In view of the Ford Motor Company contract with its foremen, all employers should examine their relations with their foremen.

Foremen trend toward the union side, because management has failed to give them enough information and they are afraid of being caught in the middle, David F. Jackey told the N.A.M. Pacific Institute of Industrial Relations. Already the shipyards in southern California the foremen are unionized up to a certain point, he said.

Dr. Jackey, who is supervisor of trade and industrial teacher training at U.C.L.A., also said the reason there are not more college and high school people becoming supervisors is that such people want to start out at that level, instead of being operators for several years first. If educated people would see the necessity of starting at the bottom, there would be more good material developed for the future.

Solar Aircraft Corporation of San Diego, it was reported at Dr. Jackey's conference, observe which workers are consulted most by others as one basis for selecting supervisory officials.

Heavy-Duty Trucking

That the West is the home of heavy-duty trucking may be seen by a comparison of the operations of Consolidated Freightways, with headquarters in Portland and routes all over the West, and the famed eastern Keshin operations. With 175 heavy-duty and 254 city rigs, Consolidated handles \$8,000,000 a year, while Keshin requires 2,000 rigs to handle \$10,000,000 annually. Further Western trend toward large units is indicated in an increase from 37,459 heavy-duty rigs in 1942 to 39,771 in 1943.

Wenatchee Factory

Department of Agriculture men have been studying the possibilities of converting the ferro-silicon plant at Wenatchee to fertilizer manufacturing when its war contracts are completed. The electric ovens are considered possible for converting phosphate rock into super-phosphates; electric power for the operation would come from nearby Grand Coulee Dam.

Migration Study

To develop the facts about in-migration and out-migration from the Pacific Coast, James Mussatti, general manager of the California State Chamber of Commerce, has been appointed a special consultant to the War Manpower Commission. W. K. Hopkins, regional WMC director, expects thus to get an idea of why people are moving in and out, and why.

New Safety Hose

Another use for synthetic rubber is reported in flame resistant gasoline hose for Consolidated-Vultee's new super airship. Developed by U. S. Rubber Company, it replaces cotton as a covering over the synthetic rubber inner liner of the hose with a woven asbestos fabric. The outer covering is of Neoprene.

WMC and TWI

WMC and TWI officials are emphasizing the value of TWI for post-war readjustment, just as it enabled the labor force to be switched effectively from peace to war production.

Ingenious New Technical Methods

Presented in the hope that they will prove interesting and useful to you.

HAND GROUND

MACHINE GROUND

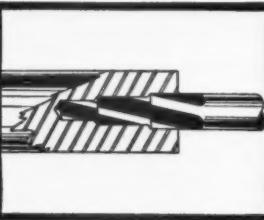
New Precision Step Drill Grinder Simplifies Production and Maintenance of Step Drills

The quality of a step drill produced by common methods depends almost entirely on the skill and attention of the individual tool maker. However, with the development of the precision step drill grinder, the human element has been entirely eliminated, the characteristics of the step being completely controlled by the grinding machine without adjustments during the course of grinding. This automatic feature insures absolute uniformity, regardless of quantity, and permits large-volume production of step drills.

The apparent advantages gained through the use of the step drill grinder are: Permits mass production of drills ground to exact specifications, entirely independent of the human element. Maintenance, too, is no longer an obstacle as step drills produced by this method are quickly sharpened by the same uniform machine-controlled operation. With the step drill grinder step drills can now be made from standard drills. These advantages result in a wider application of step drills which provide a definite saving of machine tools, man-hours and cost; this in turn results in greater production.

You know there are plenty of benefits in chewing gum, too. That's why all of the Wrigley's Spearmint we're able to make from our available stocks is going overseas to our fighting men and women. You know what a lift it's been on the job and we wish we could supply everybody, because we have pride, too, in our workmanship and productivity. But there just aren't enough available top quality raw materials right now to do it. When we can produce it in sufficient quantity, it will be back to you with the same fine flavor and chewing satisfaction ... Wrigley's Spearmint has never been changed!

You can get complete information from Spiral Mfg. Corp., 5022 North Kedzie Avenue, Chicago 25, Ill.



The above illustration shows mechanical design which requires a hole having diameters diminishing in steps. This is an operation for step drills which has often been neglected due to difficulty in obtaining and maintaining step drills.



Step drills produced by our method are quickly sharpened by the same uniform, machine-controlled method.

Y-125

Momentum In Carbide Milling

In a discussion of carbide milling of steel at the machine tool forum conducted by Westinghouse at Pittsburgh last month, E. O. Lowell of Grayson Manufacturing Company, Monrovia, California, said it had been realized by their company that momentum should be imparted to the cutting action by a flywheel considerably larger in diameter than the milling cutter itself, and with sufficient mass to impart the momentum necessary to eliminate the rotary hammering effect.

The first application was the mounting of a 12-inch diameter 110-pound flywheel on the back end of the spindle of a small gear-driven 5 horsepower milling machine. The hammering effect was eliminated and cutter life was greatly increased, as set forth in the following table:

Tests	Speed (SFM)	Feed (IPM)	Balance Wheel	Remarks	Parts Machined Before Grinding
Test A	425	15 $\frac{3}{4}$ "	No	Extreme vibration; poor finish	10
Test B	900	20"	No	No vibration; good finish	40
Test C	425	15 $\frac{3}{4}$ "	Yes	No vibration; excellent finish	220

Following this original application, flywheels have been used on many carbide steel milling jobs with equally advantageous results, according to Mr. Lowell. Thus, it is now believed that moderate spindle speeds and heavy chip loads (.005 inch per tooth *minimum*) with the aid of adequate momentum through mass results in the most satisfactory production records for the milling of steel with carbides.

Pending the complete distribution of Machines, Mr. Lowell said, especially designed and built for the use of carbide cutters, the application of these cutters to the rigid milling machines now on hand; properly adjusted, adequately powered, and equipped with momentum members, will prove to be a material aid in expanding wartime production.

Unemployment Costs Are Going Down

About 26,300 out of California's 51,000 employers paying to unemployment security funds in the state have now obtained reductions from the maximum rate of payment under experience provisions.

The present count is that 7,470 have attained the 1 per cent liability rate group, 3,030 the 1.5 per cent group, 2,570 the 2 per cent group and 3,230 the 2.5 per cent group. For the balance 3 per cent still applies.

In all divisions, greater numbers of firms qualified for rate reductions in 1944. About 50 per cent of the firms in the insurance group have obtained reduction this year, 40 per cent of the transportation and utility group and 30 per cent of the manufacturing and trade groups.



American industry shares credit for every triumph of American or Allied forces. As one of the great majority in industry who are patriotically staying on the job, giving full time and extra effort for victory, you can and should feel a *personal* pride when dispatches tell of gains on any front. Without you—and millions of other Citizen Soldiers—the headlines would be vastly different.

OURS IS A SUPPORTING ROLE

The vital importance of your work lends weight to *our* job, too. For our products, in ever increasing quantities, help maintain and protect the over-worked machines and tools with which your records are made. Our production also is up, and still gaining. Your Associated representative is at your service at all times, and can tell you important facts about new and improved products—such as Cadel A. P. Heavy Duty Lubricant—which can help you maintain your victory-making pace until peace is won.

TIDE WATER ASSOCIATED OIL COMPANY



GASOLINE POWERS THE ATTACK
—DON'T WASTE A DROP!



Cadel A. P. Heavy Duty Lubricant • Veedol and Tydol Motor Oils
Cyclo Industrial Lubricants • Associated Aviation Ethyl and
Flying A Gasolines • Fisk Tires • Aero Batteries

March of Time in the Columbia Empire . . .

THE most important industrial subject in Portland this last month was labor.

One of the requirements of any area that expects to become industrialized is a skilled labor force. Portland now has such a labor force in abundance but the big question is "How to keep it?"

The program that is worrying local industrialists and war plant operators is that of labor turnover. Though this problem is by no means confined to the Portland

area alone there are several factors that may make it somewhat more acute. It is estimated that the area is suffering a net loss of 2500 workers a month as a result of labor turnover. In the face of this is also believed that Portland needs around 20,000 more workers to man efficiently present war plants.

All this poses quite a problem to public relations and personnel managers of the various war plants. In analyzing the situ-

ation they discovered a multitude of contributing causes for the exodus. The reasons, though not important individually, all added up to the general discomfort of living in a war boom area. Crowded housing, crowded transportation, high living costs and homesickness combined with the feeling of insecurity about postwar job prospects made just enough to give many workers ample reason in their own minds for returning home. It is not just the newcomers who are getting uneasy. Many of the local people who have taken shipyard jobs are beginning to throw out strong feelers for postwar connections.

PARADOXICAL—To allay fears of an early end to shipbuilding Kaiser has made the most of his new contracts which will provide work well into 1945. However, a critical situation has arisen in the Kaiser yards which may tend to nullify these efforts. The Oregon Ship and Vancouver yards are in the midst of transitions. Oregon Ship is switching from Victory cargo ships to Victory-type troop transports. Vancouver launched its last carrier on June 8 and now has all its ways available for Victory type troop transport construction. As is always the case in such a period work tends to slow down as various departments become temporary bottlenecks in getting readjusted to the new type and schedule.

This is further complicated, however, by the fact that many important parts and materials are not available because some vendors have fallen behind on their orders. As a result a rather paradoxical situation will exist during the month of June in which crews will be transferred all over the yards in an effort to find something for them to do until the pace picks up and the same time efforts will be exerted to point out that the area really has a manpower shortage. It might not add up to some workers and that's what keeps the personnel managers worrying.

Old-time Portlanders, not anxious to have a large number of unemployed war workers on their hands after the shooting's all over, are reluctant to paint glowing pictures of postwar opportunities in the Northwest. Their appeal to the newcomer is purely one of patriotism to the war effort.

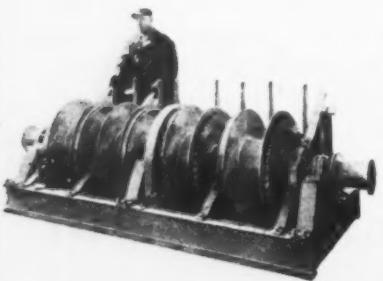
REPAIR STRUGGLE—Though you don't hear much about it, there is apparently a little behind-the-scenes struggle going on for ship repair work. Established old-line yards are getting most of the present repair work on a cost-plus basis. There are many who criticize this method of payment as conducive to waste and high cost. There are new operators, such as Kaiser, who would like to get a good chunk of the repair work themselves. Kaiser has made sensational records in converting C-4's at their Vancouver yard though little publicity has been permitted. Though there is ample reason to believe that the new drydock now being built at Vancouver will be towed to Kaiser's Swan Island yard in Portland

A CLEAN SWEEP



"OFFICIAL U.S. NAVY PHOTOGRAPH"

Mine-sweepers must sweep clean. Theirs is a hard, hazardous task and their equipment must be dependable. Lives and ships depend on them to sweep the sea-lanes free of mines.



**Engineering Products Co.
has designed and built
two, three and four drum
winches for the U.S. Navy
that are being used on
many mine-sweepers.**

On Engineering Problems call Engineering Products

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to carry on the repair work, this too, has been kept quiet. It seems to be more of a part of the repair problem than any attempt to conceal anything from the enemy.

At the recent Pacific Coast Zone Shipbuilding Stabilization conference in Portland the WLB ordered a halt to any discussion of ship repair and ship construction wages because immediate hearings had been ordered on the subject. If the drydock now being built at Vancouver is operated in Portland it may mean a little boost to employment when shipbuilding itself really begins to sag.

ALUMINUM—The Aluminum Company of America, harassed by labor shortages for some time, moved fast when its plant in Queens, N.Y., closed down several potlines. The company immediately rushed 10 of the eastern potline workers into this area to work at its Vancouver plant. Interregional recruiting, if sufficient territory is allowed, should solve some of the local plant's employment problems.

LUMBER—The manpower-short lumber industry really suffered during the recent "fishing trip." Fred Brundage, WPB deputy regional director for lumber and logging estimates daily production losses caused by the strike at 10 million board feet of logs and 14 million feet of lumber. The strike affected such things as smokeless powder, alpha pulp, rayon cord for tires, pulp and paper, boxes and crates.

Change of Date For Plastics-Plywood

Meeting of the Society of The Plastics Industry, Pacific Coast Section, with the Douglas Fir Plywood Association, reported in the last issue of *Western Industry* as scheduled for June 29 in Seattle, will be held on July 13 instead. Products and processes which combine the two products will be discussed, along with developments in each individual field.

Invitations are being issued to plastics molders and laminators, plywood manufacturers, pulp and paper makers, members of the furniture industry, college faculty members and adhesive and paint manufacturers. However, attendance is not restricted. W. H. Lampert, Ballard Plastics Corp., 5300 14th Avenue N. W., Seattle, is in charge of reservations.

TWI Milestone Is Celebrated

Awarding the 100,000th certificate to a supervisory employee trained under direction of the Pacific Southwest District, Training Within Industry Service, was commemorated by industrial and labor leaders at a luncheon in Los Angeles June 8.

This district was the first one in the country to be established. The employee was Charles Poole, labor leadman at Standard Oil's El Segundo refinery.

BEFORE THEY
LOAD THE GUNS . . .

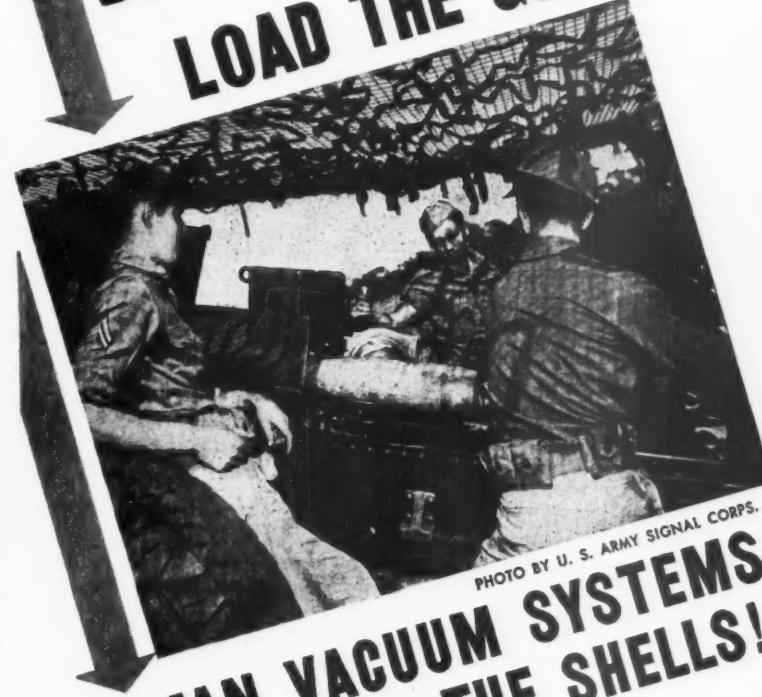


PHOTO BY U. S. ARMY SIGNAL CORPS.

HOFFMAN VACUUM SYSTEMS
HELP LOAD THE SHELLS!

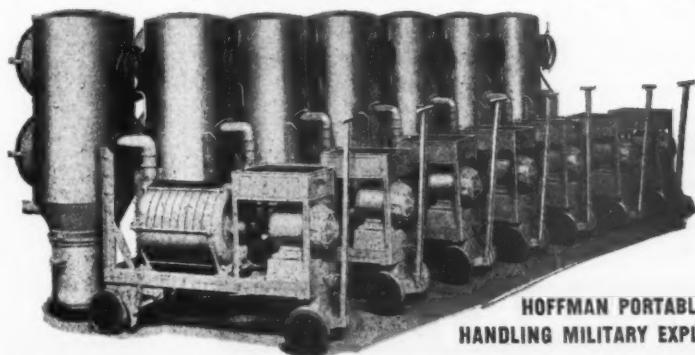
Special Hoffman Stationary
Dust Removal Systems are widely

used in Army and Navy ammunition load-
ing plants. They fit in with established production

procedure, and on many operations they work automatically.

Separate Hoffman Vacuum Cleaning Systems — both stationary and
portable — have been proved to be the safe, efficient method of
good housekeeping in these important plants.

If dust is interfering with your war production, or if you have
a dust problem, let us assist you. Write for Catalogs.



HOFFMAN PORTABLES FOR
HANDLING MILITARY EXPLOSIVES

U. S. HOFFMAN MACHINERY
CORPORATION
AIR APPLIANCE DIVISION, 92 EAST 12TH ST., NEW YORK 3, N. Y.

Industry in Review... Tehachepi to Tijuana

D-DAY stopped the mental time-clocks of all in this area, because there were few who could think of their own problems when this great event was under way. Twenty-four hours later, however, they had started turning and each man had to pick up his own mental burden again, because that was his part in the invasion.

Prior to D-Day, this area had been going through the "invasion jitters" phase. Some war orders were being curtailed, others speeded. Simple explanation was that Uncle Sam had enough of some items so that he was buying carefully, but that he needed more and more of other items, and needed them faster and faster. Knowing this didn't make the owner of the plant that was slowing down feel any better, because he didn't know what his next step was.

The "invasion jitters" phase hit its high on a newspaper headline that Douglas would dismiss 8,000. The story said that (1) it resulted from change of model; (2) that the layoffs would come over period of four and one-half months; (3) that they

would approximate normal turnover, anyway. Made no difference . . . it was an 8,000-person stone in the pond and the ripples were 8000-person ripples. Demands for workers in other plants, and speeding up of production couldn't offset the effect of the 8,000 layoff headline.

POST-WAR—Douglas made news again when it was announced that a national banking syndicate would provide financing of \$75,000,000. It was bullish news. In the first place, you don't borrow \$75,000,000 unless you have some pretty definite plans. In the second place, it is generally felt that all bankers, and particularly New York bankers, wouldn't lend \$75,000,000 unless your plans were pretty good. At any rate, it all made westerners feel that the post-war future is starting to take a little shape.

General Electric made news with its permit to make electric irons at its Ontario plant. This is not the first return to civilian production in this area, but others seemed to be on somewhat of a "we will not prohibit" basis if the plant didn't bother war production from standpoint of manpower

and materials. The electric iron arrangement was on a more positive basis. Some feel that if Mother is given a new electric iron, that they may also give her a new washing machine. In other words, the start has been made and the feeling is that more civilian goods will be approved during late 1944 and 1945.

Interesting fact in this area was that the first return to civilian production was by a firm that had formerly made the item. A "war-baby" was not the one. Nor were the "war-baby" firms permitted to halt production to turn to a civilian item. Hopes of some that we would have a certain day, a certain hour, and a certain minute when all firms could make this or that household item—whether they had ever made it before or not—were quietly killed. Nobody seemed much surprised either. Or disappointed. Unless it is the guy who really was going to make an electric iron.

DECISION-DAY—Summing up, D-Day turned the spotlight on post-war plans. Nobody thinks the invasion would have taken place unless there had been ample reserves to meet an unexpected assault that would have brought disaster unless we were ready with more ships and supplies.

There is no discounting the war with Japan. However, it is felt that filling up of stockpiles here and there is now going on at an accelerated pace. Six more months will do a lot of filling up, and six more

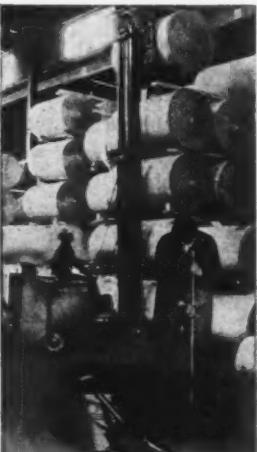
HEAVY DUTY FLOOR PATCH

Takes Traffic Immediately

Now you can restore broken concrete to solid smoothness without having to close off the area. Use durable INSTANT-USE . . . a tough, plastic material which you simply shovel into hole—tamp—and run traffic over immediately. NO WAITING. Bonds tight to old concrete. Makes smooth, solid, heavy-duty patch. Withstands extreme loads. Keep a drum on hand for emergencies. Immediate shipment.



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FLEXROCK COMPANY

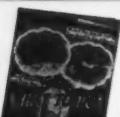
3674 Filbert Street, Philadelphia 4, Penna.
564B Market Street, San Francisco, Calif.
924B S. Catalina Street, Los Angeles, Calif.

Please send me complete INSTANT-USE information and details of FREE TRIAL OFFER—no obligation.

Name _____

Company _____

Address _____



PUNCH-LOK

• • • • the Easiest, Fastest, Most Dependable and Economical Method for SOLVING HOSE CLAMPING PROBLEMS

The PUNCH-LOK Hose Clamp is a mechanical device for clamping fittings, menders, or ordinary pipe to a hose. A broad, flat, high tensile strength galvanized steel band is double-wrapped around the joint. After tensioning with a pull of 1000 pounds within the LOKING-TOOL, the ends are securely locked together under tension without loss of tension. The excess band is then cut off flush with the Lok so that the entire joint is streamlined for safety.

Once the PUNCH-LOK Hose Clamp has been locked, vibration or rough handling cannot loosen it. There is no possibility of injuring or cutting the hose in any way—the clamp will outwear the hose—and the cost is no more than ordinary clamp of yesterday. Stop your hose leaks and troubles with PUNCH-LOK.

15 SECONDS TIME STOPS COSTLY LEAK LOSS.

Write today to Department B for illustrated folder or contact Harry M. Thomas, Pacific Coast Representative, 1554 Oakland Avenue, Piedmont 11, California, for the name of your nearest distributor.



• THE BAND
Double-Wrapped



• THE TOOL
Heat-Treated



• THE JOINT
Punch-Loked

PUNCH-LOK COMPANY

321 N. Justine St.

Chicago, Illinois

DISTRIBUTORS IN PRINCIPAL WESTERN CITIES

months beyond that may see them overflowing. So—D (for Decision)-Day had best not be put off for too long by industry.

MANPOWER—Still a problem for pretty much same old reasons. Shipyards back on two 10-hour shifts. Other plants that are under pressure working full blast. The work will get out even though the situation looks lousy from a statistical standpoint.

Happy phase of present problem is that the greatly feared unemployment problem that keeps some of the people awake at nights may not be so tough.

HOUSING—WPB refused to build the 30,000 homes requested by those trying to solve manpower problem. Kept whittling and whittling until 10,000 was a closer figure. Maintained position that it wasn't so much concerned with rents, inconveniences, etc., so long as people weren't actually living in streets. Better to use all available lumber to end war, then build houses. Apparently they had something, because more persons now leaving this area than arriving.

With new houses being completed in various areas, this housing situation may start to rectify itself. It has been one of the wildest real estate markets seen for many a day. Nobody wanted to rent; everyone wanted to sell. Often the new buyer would be offered a handsome profit before he could move in. But somebody is going to take an awful licking someday.

SCARCITY OF CIVILIAN ITEMS—Gasoline is one thing missed in Southern California. Seem to be cutting even deeper on C users. Whiskey scarce, but other beverages available. Very little gum. Limited selection some clothing on account of OPA regulations affecting styles. Limited selection of shoes. Greatly missed are children's toys such as skates, scooters, etc. One is more surprised by the items that are on the market occasionally than by those unavailable. Some should be purchased and put away to prove to posterity that civilians really did suffer in this war even though we weren't bombed (we hope).

MAJOR GRIPE—Most people aren't faring badly, and aren't too unhappy. BUT—the unnecessary insolence that one gets on occasions seems to be the major gripe of this area. Frequently it comes from those who really should know better, and that is when it is most irritating. You can't honestly get too angry with a firm if some clerk or someone in a position that isn't too high gets out of line—unless you give the owner some kind of break.

But, when an executive "puts on an act," it seems to drive some of our informants crazy; Don't blame them. But . . . a lot of life will be lived after this war . . . and some firms may wonder why some new competitor is serving a lot of the "old customers of the house." The days of "selling" are approaching—more swiftly than we think.



Ampco Metal, Inc.

announces its New West Coast Division Plant (Burbank, California)

. . . for better service to the aircraft industry
and other Western users of aluminum bronze

This modern bronze foundry, employing advanced Ampco methods for sand and centrifugal casting, has been established to improve Ampco's service in the Pacific Coast states. • It is equipped to produce a general line of aircraft parts of Ampco Metal, which lasts several times as long as ordinary bronzes under severe conditions of wear, shock and fatigue.

Ampco Metal parts are standard equipment at critical points on practically every American-made plane now flying, in over 90 leading makes of machine tools, etc. • This plant will maintain spot stocks of Ampco wrought and extruded products. • Utilize this improved service. Call your nearest Ampco field office. Write for bulletins on Ampco Metal applications.

Ampco Metal, Inc.

West Coast Division: 30 E.
Burbank Blvd., Burbank, Calif.
Telephone Charleston 8-5504.
Field offices at Burbank, San
Francisco-Oakland (5935
Zinn Drive, Oakland), Seattle
2 (2109 Boyer Ave.).

Department WI-7

Home Office: Milwaukee
4, Wisconsin. Field offices
in Principal Cities.



Metal
The Metal without an Equal



Speed-up the work!

*Be sure your equipment
is in tip-top shape*

You may have as much as 10-20 per cent more output (and profit) in your present set-up if every tool is in good shape. Let us make an examination of your welding equipment — give you an impartial report that tells what should be repaired and what it will cost. No charge or obligation—just part of the service that has helped make us the largest California-owned manufacturer of Oxygen and other gases.

We're also one of the largest distributors of welding equipment and supplies. Stocks in more than fifty towns. Service that makes you say, "good outfit!" Just telephone, and we'll get on the job—fast.

Stuart Oxygen Co.

San Francisco, Portland, Tacoma, Oakland, Los Angeles

The entire production of this thoroughly dependable carbide from both Portland and Tacoma plants is now working to speed victory.

PACIFIC CARBIDE

Made by Pacific Carbide & Alloys Co., Portland and Tacoma.

Distributed and unconditionally guaranteed by Stuart Oxygen Co., San Francisco, Oakland, Portland, Tacoma, Los Angeles.

State C of C's Postwar Study

THE CALIFORNIA State Chamber of Commerce has issued the first section of its survey of postwar research and planning activities, which includes chambers of commerce and similar civic agencies. When all the reports have been completed, they will be revised and combined into a directory of research and post-war planning organizations.

An advisory or steering committee is being formed by the chamber to determine useful lines of study on the basic factors or determinants of industrial plant location, such as markets, transportation and distribution facilities, labor force and wage levels, power and fuel, raw and semi-finished materials and plant facilities.

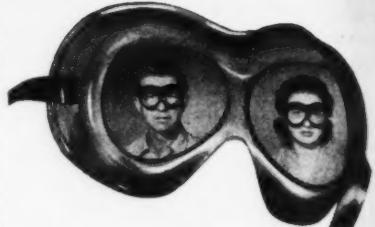
The committee will be composed of industrial engineers or industrial department managers from large chambers of commerce, engineers, statisticians, or economists from the railroads, public utilities, banks, universities, governmental agencies and other agencies with technical facilities for the study of plant location factors, and that its function would be to (a) correlate the work in this field now in progress, (b) recommend studies or publications to be undertaken by the State Chamber or other cooperating agencies to provide useful overall summary data for primary trading areas and the eleven western states, and (c) to furnish research information and guidance to local agencies interested in industrial plant location or expansion of manufacturing enterprises.

It is pointed out that local chambers of commerce and C.E.D. Community Committees in many industrial localities, and bank, utility, and many other agencies that are being called upon to furnish factual information to manufacturers with regard to these major factors determining the feasibility of plant location or expansion, but lack the basic information needed to give any adequate picture of the primary trading area in which they are situated, or of the western states as an economic region, and that there is a particular dearth of published statistical summary, graph or map information which can be distributed readily to any information seeker or incorporated in local reports as background material.

Among the research projects now underway are the following:

A project committee of the State Chamber for the iron, steel and related industries. Similar committee proposed for the chemical and plastics industry.

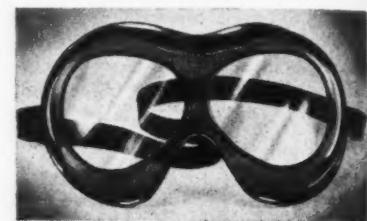
Federal Reserve Bank, Division of Research, making an intensive study of the shipbuilding industry on the Pacific Coast



You're Looking Through the New CESCO Cover-Lite Goggles

As you're looking through these new CESCO Cover-Lite Safety Goggles, you're practically experiencing their comfort—because when you actually have them on, you scarcely know they're there.

The combined weight of the lenses and the frame is only 96/100 of an ounce! The frame rests lightly—no pressure on the nose, brow or forehead. They're comfortably worn over prescription spectacles, too.



Cover-Lite lenses are replaceable

Notice the clear plastic, non-shattering, replaceable lenses. They have remarkable strength, and assure safety against impact. Also available with green lenses; and with either transparent green (No. 552) or white marbleized (No. 554) frames.

Write for complete information now.



HOW TO SELECT INDUSTRIAL HEAD AND EYE PROTECTION

Before you buy safety equipment, see CESCO'S new 48-page catalog. It's the standard for quality... write for your copy today.



**CHICAGO
EYE SHIELD CO.**
2322 Warren Boulevard
Chicago 12, Illinois

CESCO
FOR SAFETY

and its postwar prospects, and some work done on the aircraft industry with particular reference to financing.

California Institute of Technology starting an intensive study of the aircraft industry.

Economic and industrial survey of the Los Angeles area by the Bureau of Business and Industrial Research of the University of California for the Haynes Foundation. Similar survey of San Francisco region started in May, Central Valley Project to follow.

San Diego has employed the firm of Day and Zimmerman to make a study of that locality.

Postwar Electric Opportunities Listed

Opportunities for postwar expansion in the electrical goods field in the eleven Western states reported by the Los Angeles Chamber of Commerce from census figures are as follows:

1939 VALUE OF PRODUCTION

	Eleven West- ern States	Per Cent of U.S.
Automotive Electrical Equip.	\$ x x	
Batteries, Storage and Primary (Dry and Wet)	6,012,000	5.1
Carbon Products	x x	
Communication Equipment	718,000	0.4
Electrical Appliances	3,747,000	2.6
Elec. Measuring Instruments	111,000	0.3
Electrical Products, Misc.	203,000 x	0.5x
Electric Lamps	x x	
Generating, Distribution, Industrial Apparatus	13,955,000	3.0
Radios, Radio Tubes and Phonographs	5,616,000	2.0
Wiring Devices & Supplies	1,530,000	1.6
X-ray, Therapeutic Apparatus, Electronic Tubes	939,000	5.2

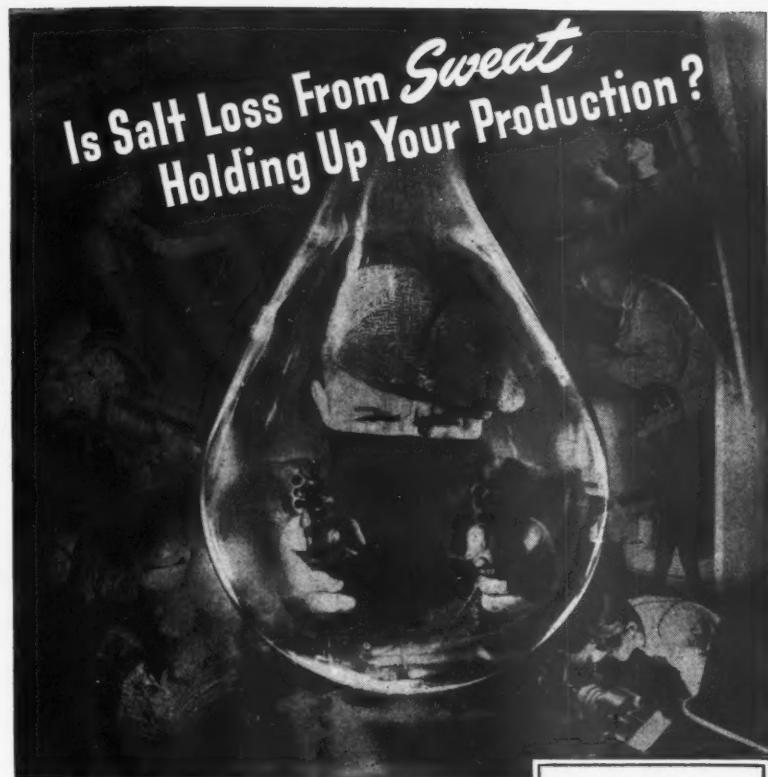
X represents incomplete reporting due to some production so small that data were withheld to prevent disclosure of individual operations, or percentage so small as to be of no statistical significance.

Post-War Dreams Shattered

The world may dream about post-war gadgets—but M. J. Brown, domestic trade commissioner of Los Angeles discovered through a survey of retailers that they want after the war just about the same types of items they formerly got. They do want some goods with "logical" improvements as time goes on, but "dream models" are not expected for a considerable time—several years, in fact. The retailers want goods to sell that are the result of evolution, not revolution, in merchandise.

Geneva Shortage

Geneva Works shipped about 20,000 tons of steel plate to the Pacific Coast in May out of 58,000 tons capacity. Man-power shortage for producing coke is reported serious, the force at the Geneva coal mine in January being 705 men with a daily output of 5,000 tons, while in May it had dropped to 500 men producing 3,500 tons.



Stop it for less than 1c a man per week

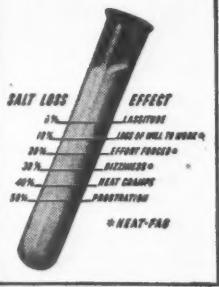
When workers sweat their systems lose essential salt . . . And salt is essential. It gives tone to the blood. It keeps body fluids in equilibrium. It helps maintain proper body temperatures.

Loss of this salt through sweating dehydrates the body . . . thickens the blood . . . causes Heat-Fag. The resulting fatigue and inattention make production sag and accidents rise.

To drink water alone is not the cure. It only dilutes the body fluids. The result is heat cramps . . . and more loss of production.

The real answer, recommended by industrial doctors and endorsed by America's greatest corporations, is to place salt tablets at every drinking fountain. Then, workers who sweat can get the salt they need when they take a drink of water. Morton's Salt Tablets are the easy, simple, sanitary way to replace the body salt sweated out. And the cost is less than 1 cent a man per week.

This Is What Happens When Sweating Robs the Body of Salt . . .



QUICK DISSOLVING (Less than 30 Seconds)

This is how a Morton's Salt Tablet looks when magnified. See how soft and porous it is inside. When dissolved with a drink of water, it dissolves in less than 30 seconds.

Case of 9000, 10-grain \$2.60

Salt-Dextrose tablets, case of 9000 \$3.15



MORTON'S DISPENSERS

They deliver salt tablets, one at a time, quickly, cleanly—no waste. Sanitary, easily filled, durable.

800 Tablet size - - - \$3.25

Order from your distributor or directly from this advertisement . . . Write for free folder.

MORTON SALT COMPANY, Chicago 4, Ill.



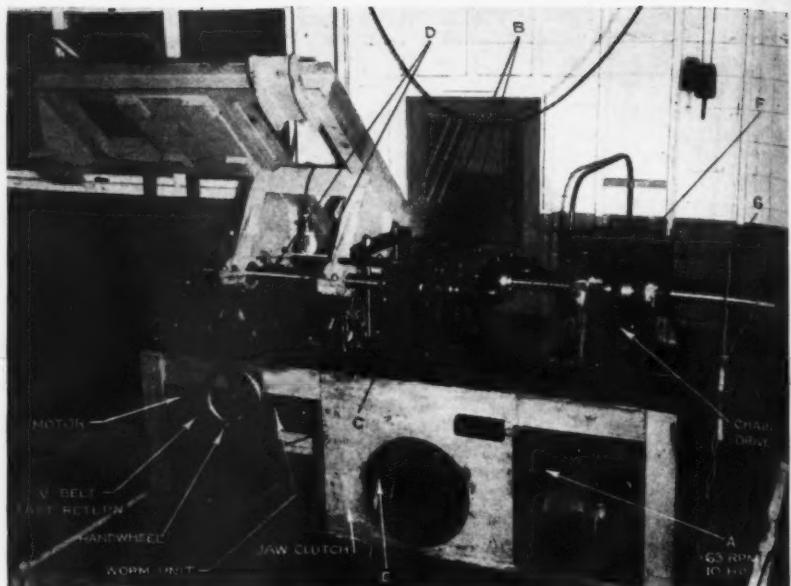
EFFICIENCY KINKS FROM WESTERN PLANTS

Production short-cuts • Worker's suggestions • Prize-winning awards

A machine that has done a very satisfactory job for Western Gear Works, Seattle, for performing the boring and facing operations on all four bearing pedestals, on a bedplate at the same time, has been worked out by the engineering staff of the company.

The need arose when a contract for gears and machinery for LST (Landing Ship Tanks) was ordered doubled. Until then Western Gear's capacity for boring and facing each pedestal singly had been sufficient, but it was obvious that a rapid method of performing this particular operation must be made immediately if schedules were to be met.

On account of critical shortages of steel and other materials, it was necessary to resort to the use of scrap metal and parts of obsolete machines which could be converted into the frame and working parts. For example: A test motor originally used in developing the LST machinery was commandeered; a reject screw was likewise utilized; and Western Gear's weld-



• Western Gear's home-made horizontal boring mill simultaneously bores and faces four bearing pedestals on a bedplate (consult text of article for key to the letters).

ers and tooling department set to work to build a machine.

The result was not a design engineer's idea of a beautiful machine — but it worked. The complete job, from blueprint to production, was done within 20 days.

The arrangement of the tool bits on the boring bars is such that the boring and facing of all four bearing pedestals is a continuous process. This simultaneous operation actually reduces production time by more than 75 per cent.



The faster set-up and quick, easy assembly features of the new "Cam-lock" stand makes Rapid-Wheel Conveyors more convenient than ever. Designed especially for the Army and only now have they become available for civilian use. A self-contained unit, the "Cam-lock" stand folds completely under the conveyor, saves storage space, rolls to the job. Provides a full range of adjustments up to 50" operating height.

Write for full information to the RAPIDS-STANDARD CO., Inc., 5352 Bond Ave., Grand Rapids, 2, Michigan.

WEST COAST DISTRIBUTORS: E. C. Buehrer Co., 562 Bryant St., San Francisco, Calif. M. E. Canfield Co., 420 E. 3rd St., Los Angeles, Calif. Murry Jacobs Co., 528 1st Ave., So., Seattle, Wash. Oregon Handling Equipment Co., 907 Terminal Sales Bldg., Portland, Ore. Murray Brokerage Co., Wazee Market, Denver, Colo.

Rapid-Wheel CONVEYORS

ISAACSON
Iron Works
SEATTLE

The machine consists of two parallel boring bars on fixed centers. Cutting tools are fixed in the bars so that the four pedestal bearings on the frame are bored simultaneously. The inside faces of each hub are also faced subsequent to the boring operation.

Main source of power (A) is a Pacific G.E. gear motor salvaged from a previous test set-up on some of the LST equipment. It is a 10 H.P. at 63 R.P.M. output, which drives a chain (C) running over the two sprockets (B) keyed to the boring bars (D). A gear reduction box (E) is also driven by chain (C), the power from which is transferred to chain sprocket drive (F). This sprocket has for its hub, a nut for the power screw (G) which gives the longitudinal motion to the boring bars. A jaw clutch is placed on the output shaft of reducer (E) which provides for disengagement of the main power drive and allows the engagement of an auxiliary drive for fast travel of boring bars with power. Handwheel (H) is also connected to the auxiliary drive so that the boring bars can be fed by hand for the facing operation.

Plywood Research

Plywood Research Foundation is the name of the new experimental institute financed by Douglas Fir Plywood Association to bring greater utilization of Northwest timber through development of additional products. The laboratory will be located at Tacoma; an initial fund of \$100,000 has been established, and the subscribers have pledged themselves to continued support of the project.

"The new foundation will not concern itself with plywood or uses of the established product," according to W. E. Diford, managing director of the association, "as the existing plywood association laboratory, also at Tacoma, will continue to function with increased activities.

"Primary emphasis of the exploratory studies will be placed on development of wood products to be manufactured from material sources now regarded as secondary, i. e., the smaller trees, and on utilization of logging and mill waste," he continued. The items, when developed, might be manufactured in existing plywood factories or in other plants.

Calship Does It Again

Accident frequency at the California Shipbuilding Corporation, which won a National Safety Council award in January for being reduced to 12.4, dropped to 7.1 in April. The severity rate meanwhile declined from 1.79 to 0.09.

Manufacturer's Representative WANTED

by a midwestern manufacturer of metal stampings in small lots. Some very desirable territory still open on a protected commission basis. Die stamping knowledge an advantage. Reply Room 209, 549 Washington Boulevard, Chicago, Ill.



Wells Fargo franked envelope of the '50s.
Used for mail dispatched "over our California and coast routes," these envelopes sold for 7¢ plus 3¢ Government postage.

Today, as in the '50s—

Letters were carried in the early days over Wells Fargo stage-coach routes for seven cents. But the revenue did not measure the service given. Letters were handled carefully and delivered promptly, as were shipments of gold bullion worth thousands of dollars.

Today, as in the '50s, there is no service to customers that is unimportant. In relations with correspondents and depositors, every detail, no matter how small, is to receive full attention.

Wells Fargo Bank & UNION TRUST CO.

SAN FRANCISCO • 20

Market at Montgomery • Market at Grant Ave.

Established 1852

Member F. D. I. C.

WESTERN MARKETERS AND MARKETING

A monthly column devoted to the promotional and advertising plans of western manufacturers

To the list of accounts now being supervised by *Ad-Craft Service*, Seattle, add *Young Iron Works* and *Sietson-Ross Machine Co.*, both of Seattle. Recent activities of the agency include release of schedules for Isaacson Iron Works in the construction and general industrial fields.

The Connor Company, San Francisco, takes over the advertising account of *American Rubber Mfg. Co.*, Oakland, with Dennis Muir in charge as account executive. An exhaustive market analysis is reported under way prior to submission of advertising plans.

A new alignment of personnel in the San Francisco office of *BBD&O* sees Chas. McDougal advanced to head of the planning committee for all western offices. Chas. Ferguson, vice-president, takes over as head of the San Francisco office with A. W. Neally joining the staff as account executive on the *Standard Oil Co.* account. Neally brings to the agency a broad background of experience with the Dancer-Fitzgerald-Sample agency, Chicago, and the Gardner Advertising Agency, St. Louis, where he was vice-president.

More proof of the old adage that if you want a job done well give it to a busy man, is found in the news that Bill Horsley, president, *Pacific National Agency*, Seattle, will command the Volunteer Port Security Force. Horsley is com-

missioned a lieutenant commander in the Coast Guard Temporary Reserve.

Davis & Beaven, Los Angeles, will supervise the advertising of *Leonard Precision Products Co.*, Garden Grove, Calif., manufacturers of precision tools and aircraft equipment. Account executive will be Ford McElligott with business magazines and direct under scrutiny as media.

A recent addition to the staff of *Gerth-Pacific Advertising Agency*, San Francisco, is John R. Pitsker, formerly editor of the *Coast Banker and Housing Magazine*. Pitsker brings to the agency also wide experience in the public relations field.

Western Advertising Agency, Los Angeles, adds *Soil-Off Mfg. Co.* to its list of accounts. Media used will consist of trade journals, radio, newspapers and magazines.

Resigning from the G. M. Basford agency, where he served as copy writer, Donald McKenzie joins *Joshua Hendy Iron Works*, Sunnyvale, Calif., as assistant advertising manager.

Cedric W. Tarr, copy director for *Buchanan Co.*, San Francisco, moves up to take over direction of the important *Tidewater-Associated Oil Co.* account as account executive.

John J. O'Rourke, who has served as public relations director at the University of San Francisco and as a member of the S. & W. Fine Foods advertising staff, and also has had direct industrial experience, is now a member of the San Francisco staff of the *McCarty Co.*

Frank E. Lynch, advertising manager for the Pacific Coast division of *Owens-Illinois Glass Co.* for several years, has been transferred from San Francisco back to the home office, to become copy chief of the advertising department there.

"E" Awards

Pacific Screw Products Corporation, South Gate, Calif., awarded the Army-Navy "E" for meritorious services on the production front, had the official presentation of the award on May 19. James W. Compas, president, accepting on behalf of his company, and Miss Ilene Davidson and Walter L. Aspeneiter receiving the "E" emblems for the employees. Stephen A. Compas, vice-president of the company, presented checks for \$5,000 from employees and management to the A.A.F. for aid to flyers families and to the Navy for the Naval Aid Society.

The San Francisco plant of Link-Belt Company, Pacific Division, awarded the Army-Navy "E" for excellence in production of vital material, is the fifth Link-Belt plant so honored. At the presentation ceremonies Robert B. Gaylord, president of the National Association of Manufacturers, a director of Link-Belt's Pacific Coast organization, served as chairman. Ralph M. Hoffman, president, introduced Horace P. Phillips, vice-president, who accepted the award flag on behalf of the company and its workers. Paul N. Chenoweth, chosen by his co-workers to accept "E" pins on their behalf, lost his only son, Lt. Robert Chenoweth, a P-38 pilot, in the invasion of Africa.

Payne Furnace & Supply Company, Inc., Beverly Hills, Calif., have won for the second time the Army-Navy award for meritorious services on the production front, and the right to add the "White Star" to its "E" flag.

The outstanding production record made by the Kaiser steel plant at Fontana was recognized by the Maritime Commission with the award of its "M" burgee at ceremony held May 27. Henry J. Kaiser received the flag in person.

Now Available

These Metal **SMOOT-HOLMAN** Luminaires

1944 JULY 1944

2 9 18 24 12 1 28 9

SMOOT-HOLMAN COMPANY
INGLEWOOD, CALIFORNIA

Offices in Principal Western Cities — Branch Warehouses in San Francisco

Business Books

Electric Power Requirements of Industrial Establishments in the United States. A new publication of 177 pages presenting data on the industrial use of electricity in the United States for the period 1939-1942 inclusive and the estimated use for the years 1943 and 1944. Copies of the publication designated as FPC-35 are available for 50 cents per copy. *Federal Power Commission, Washington 25, D.C.*

Food Dehydration, Gerald W. Hallowell. A twenty-page illustrated booklet, recently published by the National Fire Protection Association will be of interest to operators of food dehydration plants, fire protection, mechanical and air conditioning engineers, etc. The various complex processes and up-to-date fire protection and prevention measures for combating fire and explosion hazards of the industry are discussed in non-technical language. Price 35c. *National Fire Protection Association, 60 Batterymarch Street, Boston 10, Mass.*

Soybean Chemistry and Technology, by Klare S. Markley and Warren H. Goss. A timely book covering the chemical and technical aspects of the versatile oriental soybean. The machinery and equipment of soybean processing industries is described and illustrated in detail. A comprehensive list of soybean oil mills and manufacturers of equipment is also given. Price \$3.50. *Chemical Publishing Company, Inc. 26 Court St., Dept. G., Brooklyn 2, N.Y.*

Practical Design for Arc Welding, by Robert E. Kinkhead. A practical working book for the welder, manufacturer, engineer, and designer; not a text book but an illustrated storehouse of information and detailed drawings showing how tubing, plate, sheet, standard steel section, angles and bars can be used to fabricate better, stronger products with arc welding at a lower cost. It also contains a time-saving cross reference "Short Cut to Design Ideas." Price \$3.50 per volume, complete 3-volume set, \$10.00. *The Hobart Brothers Company, Hobart Square, Troy 1, Ohio.*

Electrical Graphical Symbols (Z32,11-1944). Graphical symbols for electrical and electronic equipment have been unified into a consistent set of symbols that will mean the same thing to everyone who uses them. This has been accomplished through development of a new American War Standard-Coordination of Graphical Symbols. Price 10c. *American Standards Association, 29 West 39th Street, New York 18, N.Y.*

The American Way, by Maxwell S. Stewart. Factual material in this pamphlet
(Continued on Page 62)

EFFECTIVE Sealing

McGILL "Solidend" **MULTIROL** Bearings are effectively sealed against foreign matter. Minimum clearance between O.D. surface of inner race and ground bores of shoulders of outer race is maintained by McGILL engineering and manufacturing standards, thus making possible this sealing.

This small clearance so effectively seals in the lubricant that, in many cases, no auxiliary seal of felt or metal is necessary.

Use your Priority in order to secure McGILL "Solidend" Bearing Superiority.

McGILL
MANUFACTURING CO., INC.
Bearing Division

1575 N. Lafayette Street, Valparaiso, Indiana

FACTORY BRANCHES: Casey Bearing Company, 406 Golden Gate Avenue, San Francisco, California; Casey Bearing Company, Inc., 1155 South Hill Street, Los Angeles 15, California; The Bearing House, 318 16th Street, Sacramento, California; R. D. Tripple, 531 Malden Avenue, Seattle, Washington; Casey Bearing Company, 372 24th Street, Oakland, California.

BUSINESS BOOKS (*Cont'd. from P. 61*)

has been obtained from many sources, particularly the monographs of the Temporary National Economic Committee, and Government and Economic Life, published by the Brookings Institution. No. 90, price 10c. *Public Affairs Committee, Inc.*, 30 Rockefeller Plaza, New York 20, N. Y.

Management Information, by Glenn Gardiner. Seven practical booklets on present day supervisory problems: How to train workers quickly; How to handle grievances; How to create job satisfaction; How to cut waste; How to get out more work; How to correct workers; Qualities of a good boss. Price, from 25c to 45c each depending upon the number of copies ordered. *Elliott Service Company*, 219 East 44th Street, New York 17, N. Y.

Practical Analytic Geometry with Applications to Aircraft, by Roy A. Liming.

Dimensional coordination in the basic engineering, lofting and tooling of the modern airplane. The author takes analytic geometry and applies its principles to basic dimensional control of airplanes. Price \$4.50. *The MacMillan Company*, 350 Mission Street, San Francisco, California.

Proceedings of the Fourth Southern California Management Conference. The papers included in these Proceedings were presented under the general themes of "War Production" and "Postwar Problems" and dealt with fundamentals of industrial management as well as with special problems arising out of the war effort. Price \$1.00. *Industrial Relations Section, California Institute of Technology*, Pasadena 4, California.

A Table of Common Hazardous Chemicals. This is said to represent the most authoritative information available to date.

The 1944 revision includes data on a number of chemicals not previously in general commercial use, which are now widely used in war industry. Price 30c. *National Fire Protection Association*, 60 Batterymarch Street, Boston 10, Mass.

It Takes Facilities To Serve That Navy

An example of the growth of naval facilities in the San Francisco Bay area is Hunters Point Naval Drydocks, starting practically from scratch in December 1941 and now capable of handling any ship of the fleet ranging from the smallest patrol craft to the largest aircraft carrier.

It has nearly 150 buildings, covers approximately 400 acres of land, has more than 10,000 civilian workers and three housing projects which will house about 5,000 when capacity is reached. In the coming year another 10 to 15 million dollars will be spent to increase the area to 500 acres.

The yard has now six docks, three which can take submarines or destroyers, another a large cruiser, another almost the largest battleship or carrier, and finally an 1100-foot graving dock which can berth the largest ship afloat.

Cushion Gets Thicker

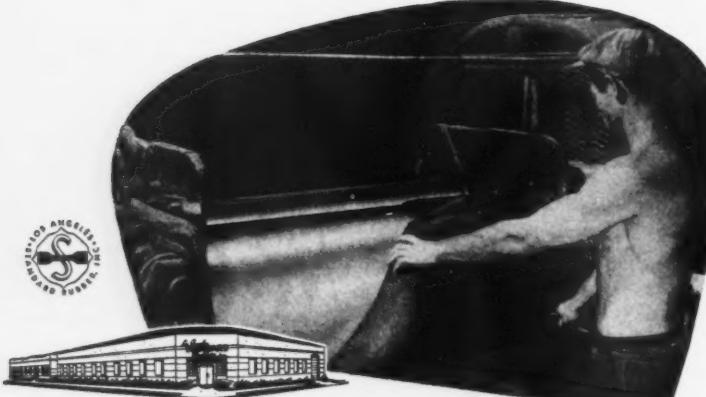
Payments from the California unemployment fund dropped to \$997,000 in April, after having reached \$1,396,000 in March. About \$834,000 was paid out in April 1942. Unless industrial cutbacks affect disbursements, the fund is expected to increase to more than \$600,000,000 by the end of the year. At the end of April it stood at \$513,000,000.

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Fluorescent-Minded People Get Together

A recent dinner put on by Listenwalters & Gough in Los Angeles to announce their appointment as a distributor for the Sylvania Electric Products Corporation turned out to be a general get-together of purchasing agents, engineers, and others from shipyards, aircraft plants and other industrial establishments in southern California, besides the electric dealers themselves.

Consequently a picture of the gathering is shown below, with the names of those present, just as a cross section of industry in southern California.

The present demand for vacuum tubes is indicated by B. K. Wickstrum, Pacific Coast manager for Sylvania, as equivalent to 20 tubes per soldier a year, and on a large bombing attack over a million tubes are in operation on the bombers, pursuit ships and ground installations.

After the war many new developments of fluorescent lighting are in prospect, such as street lighting and packaged units for application in the factory, store, office, and home.

Disposal Of Surplus Material

Western war contractors have been asked by the Property Disposal Section of the Western Procurement District, AAF Materiel Command, to compile at once accurate lists of all idle surplus property and to segregate this property in their plants.

Upon completion of lists, property so designated will be inspected and prepared for sale and shipment.

Property not found useful for aircraft maintenance or to other contractors on current production will be transferred to the Metals Reserve Co., subsidiary of the RFC,

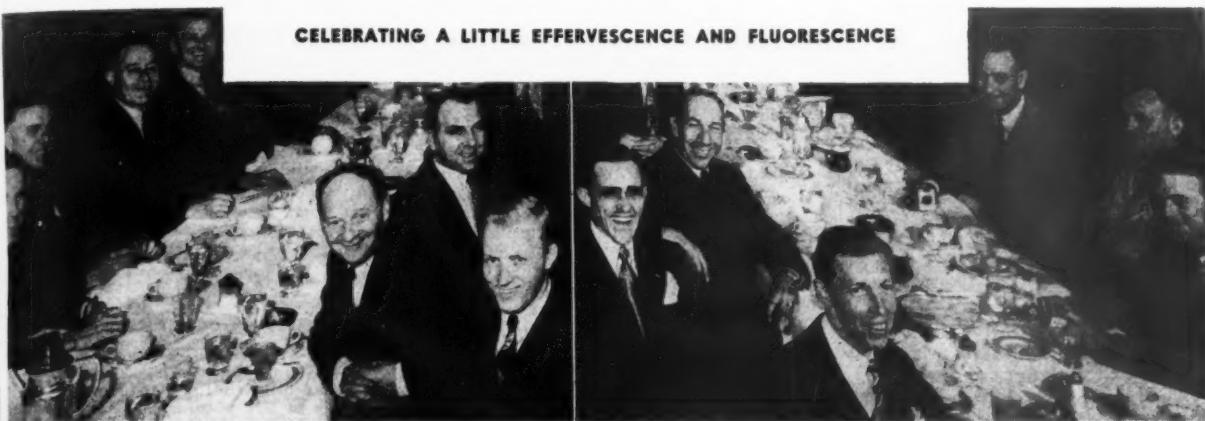
from which it will be allocated as feasible to commercial warehouse distributors for sale through normal trade channels.

Oil Shales and Postwar Oil Demand

If oil shale were substituted for the present sources of supply for petroleum in the United States, it would be necessary to mine, cook and restack a pile of shale about the size of Mount Shasta each year, according to Warner Clark, chairman of the Conservation Committee of California Oil Producers, speaking at its annual meeting in Los Angeles last month.

Expressing his private opinion as to the market demand for petroleum after the war, he said, "If I were allowed to guess, my estimate is that we would have to cut back about 200,000 barrels daily in crude output to reduce production to the market outlet at the end of the war."

CELEBRATING A LITTLE EFFERVESCENCE AND FLUORESCENCE



*Upper left picture: Norman Sneddon, May Company; C. E. Murray, Northrop Aircraft, Inc.; Bill Forsberg, Listenwalters & Gough, Inc.; Carl Gilman, Fifth Street Store; W. Hill, Hill Electric Company; H. Dalby, Pacific Electric & Mech. Co.; E. Byers, Listenwalters & Gough, Inc.; Upper right: R. H. Cowdery and V. Dreesman, Western Pipe & Steel Corp.; H. Wissmann, Listenwalters & Gough, Inc.; Ed Faeh, Listenwalters & Gough, Inc.; C. D. Draucker, C. D. Draucker Company; W. Johnson, C. D. Draucker Company; Lower picture, outside of table, from left: Jack Mulberg, R. A. Rowan & Company; Bert Snyder, Bullocks-Wilshire; Vic Lunney, May Company; Clyde Kutcher, The Flatkate Company; Jim Kolb, Abel Precision Products Co.; T. Bell, Listenwalters & Gough, Inc.; R. L. Freeman, Adel Precision Products; Dick Cooley, Listenwalters & Gough, Inc.; J. Lackland, Consolidated-Vultee Corp.; Jim Addis, Listenwalters & Gough, Inc.; Bart Wickstrum, Sylvania Company; Phil Gough, Listenwalters & Gough, Inc.; Chick Field, Jim Cassell, Sylvania Company; Jim Hrabatin, Listenwalters & Gough, Inc.; Geo. B. Stone, Pacific Elect. & Mech. Co.; W. Bridges, J. McMahan and J. Carvin, Listenwalters & Gough, Inc.; H. H. Shearin, So. Calif. Edison Company; W. Broker, Listenwalters & Gough, Inc.; R. McCormick, McCormick Electric Company; B. Klyse, Guy Engineering Company; A. DuBois, Aerojet Engineering Company; J. Kimble, Studebaker Corporation; Inside of table from left: H. Rutherford, V. Smith, Firestone Tire & Rubber Co.; F. Lynch, North American Aviation Corp.; H. Parsons, Electric Contractor Co.; R. Johnson, Listenwalters & Gough, Inc.; G. Calhorn, Electric Contr. Eng. Co.; J. Cullum, Purch. Dept., Douglas Aircraft; W. Christopher, Consolidated Steel Corp.; F. Anderson, Douglas Aircraft Corp.; George Smith, Columbia Pictures; C. Scully, Listenwalters & Gough, Inc.; M. Goodwin, M. Kloezman and H. Frink, R. R. Jones Electric Co.; M. H. Wissmann, Listenwalters & Gough, Inc.; K. Guentz, M. L. Wesley, Guy Engineering Corporation; A. W. Harris, Studebaker-Pacific Corp.; Chet Walz, L. A. Shipbuilding & Drydock.

THE WESTERN OUTLOOK...NEWS...STATISTICS.

THE PICTURE

War contract awards in April were practically back to previous levels, after a sharp drop in March. Employment is steadily declining from its peak, and California figures show for the first time a drop below last year at the same time, employment of women dropping similarly to men. Shipbuilding and aircraft are leveling off and lumber production has dropped, due to manpower shortage or strikes, or both. Electric power consumption has begun to show a decline; copper output is off, also oil. Car-loadings are increasing.

Aircraft—Leveling Off

Pacific Coast aircraft plants, continuing the swing to bombers of greater tonnage, fighters of longer range, big transports and specialized models, delivered 2,569 warplanes in May, an increase of 274 over April. Airframe weight for May was 34,234,000 pounds, which was 3,241,000 pounds in excess of the previous month, and 8,885,000 pounds ahead of May, 1943. Indicating that output is currently stabilized at a level based on military requirements, the monthly average production for 1944 to date is 2,539 planes.

No. of Planes	Total Poundage
December, 1943	2,527
January, 1944	2,559
February	2,569
March	2,703
April	2,295

SWPC—Contracts Increase

Smaller War Plants Corporation regional figures for May show 128 prime contracts for a value of \$8,632,054, nearly \$1,000,000 above April. Sub-contracts were 289, with a value of \$1,182,754.

War Production Contracts—April Up 84 Per Cent from March

In Thousands of Dollars—Source: War Production Board Statistical Division

Note: The monthly award figures shown below represent only an approximation of the actual contracts, because cut-backs and cancellations are usually on previous awards, although reported in the current month. Also there is considerable lag in the reporting of individual contracts. However, WESTERN INDUSTRY is reporting the monthly awards by the successive subtraction method as an approximation.

MONTANA	IDAHO		WYOMING		COLORADO		N. MEX.		ARIZONA		UTAH		NEVADA	
	All Other	Ships	All Other	Aircraft	Ships	All Other	Aircraft	Ships	All Other	Aircraft	Ships	All Other	Aircraft	Ships
January	370	1,280	...	...	125,636	824	...	112	66	...	778	...	...	11
February	1,384	...	52	7,558	...	241	374	...	298	175	...	195	...	5,304
March	34	...	50	602	98	119	3,069	573	9,306	...	203	...	1,076	...
April	29	...	13,000	...	520	—1,506	—653	...	...	...	660	...	169	...
Total from June, 1940	15,807	668	8,194	43,268	1,484	2,706	392,733	4,600	47,995	387	23,928	847	168,409	156
	WASHINGTON		OREGON		CALIFORNIA		TOTAL		AIRCRAFT		SHIPS		AIRCRAFT	
January	1,549	23,782	...	7,803	12,600	2,390	220,712	46,041	2,390	290,176	...	...	...	211,461
February	84,257	74,558	...	6,602	—760	221,910	142,683	26,174	221,910	233,509	...	...	...	214,186
March	79	226,602	16,553	—169	3,136	—5,133	397,502	—42,828	79,517	406,743	—266,175	...	...	404,324
April	490,785	40,671	9,235	...	6,511	14,297	693,106	13,609	75,277	1,188,891	61,340	...	...	117,263
Total from June, 1940	2,372,689	1,744,300	360,121	1,033	1,086,104	146,959	10,095,121	4,065,065	1,654,998	12,510,149	6,899,386	...	...	2,841,386

Electric Energy—Slight Leveling Off Appears

Production of Electric Energy for Public Use—in Thousands of Kilowatt Hours—Source: Federal Power Commission

MONTANA	Idaho	Wyoming	Colorado	New Mexico	Arizona	Utah	Nevada	Total Min.	Washington	Oregon	California	Total Puwh	
May	205,605	122,700	26,558	81,677	28,266	47,694	269,825	1,058,010	698,471	389,494	1,239,465	2,327,482	
June	201,677	115,247	29,316	78,442	38,428	290,265	45,862	278,148	1,067,798	697,763	370,026	1,272,391	2,346,182
July	217,075	123,273	34,675	85,943	40,758	323,526	48,909	274,703	1,147,861	704,949	392,453	1,365,434	2,481,184
August	235,592	122,753	35,135	87,053	43,856	364,410	53,787	286,111	1,124,696	781,848	419,192	1,348,301	2,533,184
September	225,227	117,165	33,923	89,863	41,255	276,091	46,833	260,997	1,081,352	780,776	408,871	1,382,769	2,553,184
October	244,605	110,958	29,972	93,091	40,270	308,703	59,763	284,437	1,145,877	831,305	430,335	1,317,501	2,579,184
November	234,174	105,282	20,338	94,670	38,326	279,389	52,025	299,159	1,123,373	860,165	419,929	1,277,015	2,557,184
December	230,276	106,406	29,951	97,429	41,999	294,909	60,995	320,207	1,173,172	960,810	398,186	1,305,850	2,664,904
January, 1944	223,286	94,952	19,417	96,960	42,346	290,095	57,904	331,055	1,155,925	964,314	406,851	1,281,484	2,652,004
February	202,057	84,639	18,023	87,611	37,891	291,969	50,490	314,546	1,087,226	928,634	376,321	1,200,331	2,565,204
March	212,801	104,566	18,822	89,028	40,994	286,847	46,275	324,633	1,124,866	943,429	402,195	1,322,532	2,683,184
April	189,938	122,178	18,793	85,954	42,287	284,140	33,462	262,097	1,038,849	890,599	370,914	1,372,445	2,633,904

Surplus—Termination Delays

Surplus materials from termination of Army, Navy and Maritime contracts have been slow about getting into general distribution channels, because of the involved procedure required. Materials have to be offered first to the contractors themselves, then to subcontractors, before being turned over to the Redistribution Division of WPB. WPB finds very little call for aluminum, because everyone seems to have so much of it. Further release of severe restrictions may promote the flow of it. Movement of surplus materials for May from the regional offices of WPB Redistribution was as follows:

	Incoming	Outgoing
Steel	13,350,277 lbs.	10,577,831 lbs.
Copper	519,275 lbs.	375,353 lbs.
Aluminum	22,650 lbs.	37,718 lbs.
Total, all controlled materials	13,892,202 lbs.	10,690,902 lbs.

Ships—Quality Not Quantity

Final deliveries of tail-enders in the Liberty ship program brought the May figures up a bit over April, according to the Maritime Commission, but June probably shows a dip in consequence, although a rise in production should follow. Pacific Coast yards delivered 72 ships, plus three tugs and barges, amounting to a gain of 52,000 deadweight tons over April. There were 61 keels laid and 60 launchings.

	No. of ships	Thousands of deadweight tons
January, 1944	67	633
February	59	385
March	73	679
April	64	641
May	72	693

(Includes destroyer escorts and small aircraft carriers, but not larger naval vessels built by the navy itself. Also includes concrete barges, but not tugs or wooden barges. Tonnage figures from September are adjusted, previous months unadjusted. Deadweight tons are used as a rough measure of the cargo carrying capacity of the ship. All figures from U. S. Maritime Commission statistical department.)

Iron—Shipments Down

A decline of 38,000 tons in shipments from the Western area for April as compared with March is reported by the Bureau of Mines. April figures in gross tons are as follows:

	Steel furnace ore	Other ore	Total	Stocks end of Apr., '44
Ariz., Mo., Nev., Wash.	623	2,229	2,852	...
California	134	48,944	49,078	148,182
Utah	122	123,295	123,417	8,147
Wyoming	7,601	55,480	63,081	—
	8,480	229,948	238,428	156,419

Cement—Coast Figures

Cement production figures for the Pacific Coast, reported by the Bureau of Mines (in thousands of barrels), are as follows:

	CALIFORNIA	ORE.-WAH.
February	1,561	1,000
March	1,740	1,231
April	1,680	1,317
Year to date	6,865	4,518

FROM THE RESEARCH DIVISION OF WESTERN INDUSTRY

Employment—Sharp Drop in California

Estimated Number of Employees in Non-Agricultural Establishments—In Thousands—Source: U. S. Bureau of Labor Statistics

ALL INDUSTRY DIVISIONS

	Montana	Idaho	Wyoming	Colorado	New Mexico	Arizona	Utah	Nevada	Total	Mountain	Washington	Oregon	California	Total Pacific
January, 1943.	110	105.0	57.0	288	80.3	111.7	182	43.3	978	638	339	2,611	3,588	
February	110	106.3	57.8	278	79.5	112.6	174	45.0	965	624	341	2,642	3,617	
March	110	101.9	58.6	281	78.6	112.2	173	48.3	964	646	348	2,663	3,657	
April	110	104.3	59.0	282	78.9	114.1	171	47.1	968	648	349	2,685	3,682	
May	111	106.6	60.5	280	78.3	118.9	173	47.4	976	643	351	2,694	3,688	
June	112	101.3	61.4	285	79.1	116.2	173	47.3	974	655	361	2,726	3,742	
July	112	100.4	61.0	284	81.8	112.4	180	44.8	976	673	362	2,734	3,769	
August	113	98.6	61.9	287	83.2	108.7	178	41.9	972	665	361	2,776	3,802	
September	115	102.0	62.1	290	80.7	107.6	175	44.0	976	675	362	2,717	3,754	
October	114	101.4	62.1	288	79.8	109.2	172	42.1	969	667	350	2,702	3,719	
November	114	100.5	62.1	282	79.0	111.0	168	43.1	960	666	344	2,691	3,701	
December	114	98.8	61.6	279	79.0	111.0	165	41.7	950	666	345	2,696	3,707	
January, 1944	110	95.0	60.6	265	76.4	108.4	150	40.4	906	644	334	2,635	3,613	

MANUFACTURING

	Montana	Idaho	Wyoming	Colorado	New Mexico	Arizona	Utah	Nevada	Total	Mountain	Washington	Oregon	California	Total Pacific
January, 1943	15.1	11.8	3.7	66.5	4.4	12.7	30.8	1.7	147	259	145	1,002	1,406	
February	14.5	11.9	3.7	64.2	4.5	12.8	30.6	2.0	144	255	145	1,022	1,422	
March	14.3	11.8	3.7	63.4	4.5	12.6	30.5	4.2	145	257	147	1,036	1,440	
April	14.3	12.2	3.7	63.9	4.4	12.5	31.3	4.5	147	256	147.2	1,052	1,455	
May	14.2	13.4	3.7	64.0	4.2	13.8	30.8	4.9	149	255	148	1,050	1,453	
June	14.4	14.0	3.8	65.0	4.5	13.1	32.7	5.5	154	263	153.7	1,061	1,478	
July	14.5	15.2	3.9	67.0	4.7	13.5	40.4	5.2	164	274	157.3	1,080	1,511	
August	15.2	14.2	3.9	67.0	4.6	13.4	36.9	5.0	160	271	157.9	1,142	1,571	
September	15.2	15.8	3.9	68.5	4.3	13.2	35.8	5.1	162	279	161.3	1,088	1,528	
October	15.9	15.7	4.3	69.2	4.3	13.6	36.4	4.8	164	278	150.8	1,066	1,495	
November	15.8	14.9	4.5	65.0	4.9	16.5	82.1	5.0	159	277	146.6	1,052	1,476	
December	15.6	14.3	4.6	58.6	4.9	16.5	28.2	4.7	146	273	145.0	1,034	1,452	
January, 1944	13.9	12.8	3.7	53.7	4.8	15.9	22.4	4.6	132	267	139.1	1,016	1,422	

EMPLOYMENT—DURABLE GOODS INDUSTRIES

	San Francisco Bay Area	Los Angeles Indus'l Area	Total State
Jan. 1943	205,900	336,000	651,600
February	218,100	346,800	677,300
March	221,600	356,500	695,400
April	220,400	361,300	698,800
May	219,300	363,500	702,200
June	226,600	365,000	713,900
July	228,200	367,400	718,500
August	229,700	379,900	724,300
September	227,800	366,700	710,200
October	228,500	365,800	708,400
November	229,500	366,300	709,300
December	225,300	365,300	701,100
Jan. 1944	221,200	369,200	698,800
February	218,600	363,600	689,600
March	212,100	354,700	670,900
April	205,000	347,100	655,000

Lumber—Rationing Expected

West Coast lumber production in May fell below the quota set by the War Production Board. Partial strikes lost the industry 125,000,000 board feet of production during three weeks in which from 30 to 40 per cent of the capacity was down. Pre-strike rate of production has not been fully recovered, the West Coast Lumbermen's Association reports, because of difficulties in restoring former crews. Military demands for lumber are increasing. The current heavy demands are part of the mounting war drives in both the Atlantic and the Pacific. The most urgent military needs are box and crating material.

Because of prospective tight lumber supply, the WPB proposes an even more drastic control of lumber use that will put lumber on a rationing basis comparable to the rationing of gasoline.

Cumulative figures for 22 weeks in 1944 and previous years in thousands of board feet are as follows:

	1942	1943	1944
Production	3,734,259	3,157,215	3,466,535
Orders	4,492,332	5,463,725	3,697,513
Shipments	4,047,528	3,268,779	3,499,302

Western Pine Association figures covering Idaho White Pine, Ponderosa Pine, Sugar Pine and associated species for the current year to June 3 are as follows:

	1943	1944
Orders	1,820,253	1,755,202
Shipments	1,689,477	1,703,647
Production	1,459,886	1,507,264

Oil—Demand Off, Supply Rises

Total Pacific Coast Territory demand for petroleum products decreased 64,000 barrels daily in April, amounting to 954,000 barrels daily, the lowest figure since July, 1943. All the principal products shared in the decrease, gasoline, distillate fuel and residual fuel demand having decreased 9,000 barrels daily, 20,000 barrels daily and 29,000 barrels daily respectively.

On the other hand, total supply increased 11,000 barrels daily to 909,000 barrels daily, lessening the spread between supply and demand by 75,000 barrels daily, but still leaving a deficit of 45,000 barrels daily which was supplied from storage. Stocks at the end of April were down to 86,358,000 barrels, which is only a little more than half the 164,110,000 barrels carried in storage in Pacific Coast Territory in April, 1939, shortly before the war commenced in Europe.

Copper—Labor Shortage Hurts

Copper from the combined Western states decreased 4,472 tons (5 per cent) in April, according to the Bureau of Mines, a general shortage of labor at the mines, mills, and smelters in the West being largely responsible for this decline. The largest decreases were noted in the production from the three major copper-producing states, Arizona, Utah, and Montana.

THE TREND

An indication of the possibility of new and unexpected demands in war production is the fact that the Kaiser artillery shell contract reported last month has already been increased. Events in the next month in the war should give the West some indication of what is expected in production, particularly if Donald M. Nelson comes out here and has contact with the industrial community. The West's employment decline is undoubtedly partly due to the stabilization of aircraft and shipbuilding programs, but also partly to general increase in efficiency.

A.P. Johnston

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Two Coast Wind Tunnels

The world's largest wind tunnel has been completed at the Ames Aeronautical Laboratory at Moffett Field, Sunnyvale, California, for the National Advisory Committee for Aeronautics. It is even larger than the Committee's full scale at Langley Field, Va.

It is designed to test complete planes up to nearly 80 feet wing spread and major sized models of larger planes. A one-third sized reconstruction of the Boeing B-29 Super Fortress can be tested.

The continuous tube tunnel, 2,150 feet long is 98 by 128 feet in dimensions at the point where motors and fans are located and 40 by 80 feet at the test point. Power is supplied by six 600-hp. motors driving 40-foot six-bladed spruce propellers. The motors in two rows of three, one super-imposed above the other, are 21 feet long, 10.5 feet high and each weigh 57 tons.

Model planes with wingspreads up to 11 feet, or full-scale airplane sections of the same maximum size, can be tested in the new Boeing wind tunnel at Seattle. An outstanding feature is that all tunnel controls are centralized in the panel board before the test section, at the same place where model observations are made.

An intricate Boeing-designed system of balances, capable of measuring with great accuracy lifts from one-tenth of a pound up to 8,000 pounds, records all the forces acting on the model being tested: lift, drag, yaw, pitch, roll and side force. An ingenious automatic printer, which is part of an impressive array of instruments and dials on the main control board outside the test section, will, at the touch of a button, record and print on a tape all the forces acting on the model at that instant.

The tunnel's tremendous flow of air is created by a great propeller-like fan, 24 feet in diameter, consisting of 16 laminated spruce blades which were designed and built by Boeing engineers. It is mounted on the end of a 37-foot solid steel driveshaft, 16 inches in diameter, which connects the fan with the motor and clutch.

A synchronous electric motor with a rating of 18,000 horsepower, maintaining a constant speed of 514 revolutions per minute, drives the fan. The speed of the fan is regulated by a great magnetic coupling or "clutch," several times larger than any previously built, installed between the motor and the fan.

The tunnel bore is a complete, continuous-return structure which follows an approximately rectangular course 450 feet in length. It varies in size from 8 feet by 12 feet in the "throat" or test section to 27½ feet by 27½ feet at the largest part. When operated at high speed, the air completes the 450-foot circuit in less than two seconds.

Turnover In Rail Employees

More than 10,800 railroad workers left their jobs without explanation in May in the area on the Pacific Slope west of Spokane, Huntington, Ogden, Albuquerque, Tucumcari, and El Paso, according to G. B. Herington, ODT transport personnel representative in San Francisco. At this rate the turnover in 12 months would total nearly 129,600. Total operating forces of the West Coast terminal lines amount to 161,000 workers.

OPPORTUNITY SECTION

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THE WEST ON ITS WAY

ARIZONA

BUS STATION—M. W. Bobo, 1462 E. McKinley St., Phoenix, has been awarded a contract for construction of a new passenger station at First and Monroe streets, for the Menderson Bus Line. The structure will be 100x34 feet in area.

HOUSING AND FACILITIES—M. M. Sundt, 440 S. Park Avenue, Tucson, was awarded contract by the U. S. District Engineers Office, at \$76,436 for the construction of housing and facilities for servicing detachment ATC Tucson Municipal Airport, Tucson, Arizona.

JUICING PLANT—Treesweet Products Company, Santa Ana, have announced the completion of a new citrus juice canning plant at 909 East Madison Street, Phoenix. Cost of equipping the new plant was stated to be more than \$65,000.

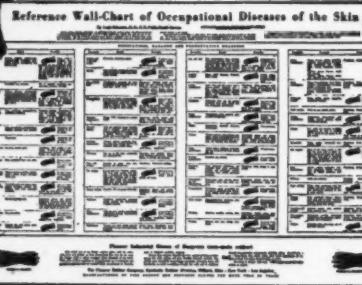
ADDITIONAL FACILITIES—Defense Plant Corporation has authorized a \$415,000 increase in its contract with Goodyear Aircraft Corporation to provide additional facilities at a Litchfield Park, Arizona, plant. This increase brings the over-all commitment with the company to \$9,260,000.

CLEANING PLANT FACILITIES—Headman, Ferguson and Classen, Phoenix, have been awarded contract by the U. S. Engineers Office, Los Angeles, for furnishing architectural-engineering services for solvent storage and drainage system for a dry cleaning plant at Fort Huachuca, Arizona.

CALIFORNIA

PLANT ADDITION—Kinney Aluminum Co., 5950 South Boyle Avenue, Vernon, is making an addition and altering its plant at cost of about \$4,650.

This Valuable Chart *FREE*



for your plant dispensary wall

This chart by Dr. Louis Schwartz, M. D., of the U. S. Public Health Service, lists occupational skin diseases, hazards and prevention. Size 34" x 22½", easy to read, handy on your plant dispensary, hospital or safety director's wall. Shows application of Stanzoil neoprene gloves that protect hands better 3 to 7 times longer in oils, acids, caustics. Chart is *Free*—write for your copy today.



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RESERVOIR—A million gallon reservoir to be constructed at Permanente to increase the plant's fire protection and to provide an extra supply of water in case of emergency.

SEEDMILL AND WAREHOUSE—Construction has started on a new plant on Hollister which will consist of two separate buildings of reinforced concrete construction.

ICE AND STORAGE PLANT—Permission has been granted to construct a \$105,000 ice and storage plant in San Jose, California.

NEW FRUIT PROCESSING FACILITY—Kodota Fig Assn. of Producers (Merced) received WPB approval of a fig canning-freezing facility.

BRASSIERE FACTORY—A San Jose plant at 372 South First Street has been opened by the Sidley Company, manufacturers of brassieres, corsets and other foundation garments. The entire second floor of the South First Street building has been leased.

NEW BUILDING—The Atchison, Topeka and Santa Fe Railway has received approval from the WPB for the construction of a \$950,870 plant at Barstow for servicing diesel locomotives.

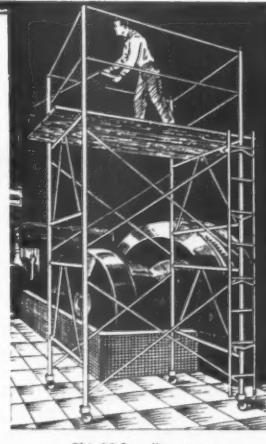
OIL REFINERY—Richfield Oil Co., 555 South Flower Street, Los Angeles, has let contract to the Lummus Co., 634 South Spring Street for an oil refinery at 1801 Sepulveda Boulevard, to cost about \$514,000.

PLANT ADDITION—United Aircraft Products Co., Los Angeles, has taken out a permit for building an addition to its plant at 2929 Santa Fe Avenue to cost \$1600.

PLANT BUILDING—McCullough Tool Co. will build a plant building at 5818 Alameda Street, Los Angeles, 20x210 feet, including a loading room, at cost of about \$17,000.

RADIO STATION—William Simpson Construction Co., Los Angeles, has been given a contract for a radio transmitting station for Columbia Broadcasting system to cost about \$300,000, for short wave propaganda.

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THE WEST ON ITS WAY

NEW PLANT—Columbia Automatic Screw Machine Products Co., has been formed by William J. Buell and has established its plant at 740 Sunset Boulevard, Los Angeles.

MAINTENANCE BUILDING—Plumb Tool Co., 2209 Santa Fe Ave, Los Angeles, has let contract to William J. Moran, 1011 South Fremont Street, Alhambra, California, for a maintenance building 60x10 feet to cost about \$10,000.

CAFETERIA BUILDING—North American Aviation, Inc., is building a cafeteria building, two stories, 97x200 feet with complete refrigeration system to cost about \$164,000.00 in Venice, Calif.

ADDITIONAL FACILITIES—Consolidated-Vultee Aircraft Corp., San Diego, has received authorization from the Defense Plant Corporation for an increase of \$800,000 in contract to provide additional plant facilities at New Orleans, making overall commitment \$12,000,000.

DRY CLEANING PLANT—At San Bernardino, building of a dry cleaning plant by J. N. Robinson at the San Bernardino Air Depot—\$23,444.15 project.

GARMENT FACTORY—The Wanden Manufacturing Company is opening a factory in Santa Barbara occupying the Benjamin Franklin building. They will install at least 30 electrically-powered sewing machines and employ from 35 to 50 persons.

NEW LABORATORY—Los Angeles Plant, United States Rubber Company, announce plans for the construction of a new control and development laboratory, incorporating the latest scientific methods of testing and analyzing materials. Estimated cost \$20,000.

RAILROAD YARD—The Santa Fe Railroad has received permission to increase its yard capacity by 500 cars.

NAVAL BASE—The U. S. Naval Advance Base Personnel depot at San Bruno will be expanded over 181 acres of land recently acquired by the Navy opposite property now leased from Tanforan Race Track. New barracks, a subsistence building, a chapel, a theatre and a gymnasium will be built on the new property.



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POWER BOOSTER

SMOKING PIPE PLANT—Briarwood Corporation of Cleveland, Ohio, has purchased buildings just south of Palo Alto for its main pipe manufacturing plant.

EXPANSION—Merco Nordstrom Division of Pittsburgh Equitable Meter Co. has announced 36,000 square feet expansion at its plant in Oakland.

MEDICAL AND DENTAL BUILDING—County supervisors approved the application for an \$18,000 building to be erected by a Fair Oaks physician. The structure is to be built of reinforced concrete.

POSTWAR-CONSTRUCTION—The U. S. Bureau of Reclamation has approved "first stage" projects in California for postwar construction that will cost an estimated \$677,000,000.

MANUFACTURING PLANT—Pacific Diesel Electric & Pump Co., has opened a manufacturing plant at 14 West Olympic Boulevard, Los Angeles, with branch at 926 Natoma Street, San Francisco.

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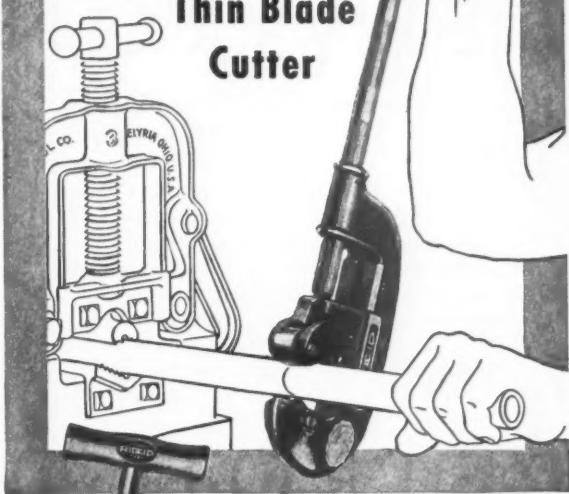
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SAN FRANCISCO Walter Harris, 200 Davis St.—DOuglas 8590

OIL FIELD—"Rejuvenating" of an oil field in Kern County to boost production of 100-octane gasoline ingredients has been approved by the Los Angeles Area Production Urgency Committee. The \$2,956,602 project undertaken by the Richfield Oil Corp., under sponsorship of the Petroleum Administration for War, also will include high-pressure natural gas gathering equipment and laboratory facilities.

SHOP STRUCTURE—Acme Plating Co., 4330 Brooklyn Avenue, Los Angeles, will build a shop structure at 416 West Pico Boulevard, to cost about \$14,000.

COLORADO

OFFICE BUILDING—Construction of a new brick and tile office and garage building to cost about \$100,000 has been started at Eighth and Wazee Streets, Denver, for the new headquarters of Rio Grande Motorway. The two-story structure, in addition to housing about 100 employees, will be used to maintain the Motorway's fleet of 85 buses, trucks, tractors and trailers.

DORMITORY—War Production Board has approved construction and equipping of a cadet nurses' dormitory with a one-story annex for teaching facilities at Pueblo, \$128,125.

IDAHO

LANDING FIELD—Carl E. Nelson, Logan, Utah, awarded contract at \$130,456 and Nic Burggraf, Idaho Falls, Idaho, at \$9183, by Civil Aeronautics Administration for the construction of an intermediate landing field at Malad City, Idaho.

MONTANA

RAILROAD WORK—Work involving improvements on the Northern Pacific R. R. Station in Billings, Montana, has begun. Cost of the project will be about \$200,000.

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NEVADA

MAGNESITE LEASE & CALCINING PLANT—An extensive magnesite deposit in the forest reserve 40 miles southwest from Ely has been leased under a royalty agreement by Nevada Chemical Co. Early construction of a calcining plant and flotation unit is planned.

NEW MEXICO

POWER PLANT—Construction has started on the first unit of a steam turbine generating plant designed to nearly double electric power facilities for Carlsbad. The new unit—2500 kilowatts capacity—is in line with the expected post-war growth of Carlsbad.

OREGON

NEW PLANT—Chipman Chemical Company have begun construction on a \$50,000 manufacturing plant in Portland to be devoted entirely to the manufacture of weed killers.

ALCOHOL UNIT—Carver Distilling Co., Oregon City, Oregon, has plans for an industrial alcohol unit, to use low-grade potatoes, including a 20-ton cooker, stills, etc.

ROOFING PLANT—Lloyd A. Fry Roofing Co., 3750 NW Yeon Avenue, Portland, has let contract to Drake, Wyman & Voss, Inc., for a 150x522 ft. roofing plant to cost about \$125,000.

WAREHOUSE—Hood River Apple Growers Assn. plan construction of a one-story reinforced concrete warehouse at Parkdale, Oregon, estimated to cost \$100,000.

POWER LINE—Portland City Council has recommended that a 115,000-volt power line be built along the northwest St. Helens Road from the Bonneville power line; estimated cost in excess of \$200,000.

NEW PLANT—Silica Products, Ltd., Portland, are constructing a \$75,000 plant in Eugene, Oregon, for production of foundry sand for foundries in Portland and San Francisco.

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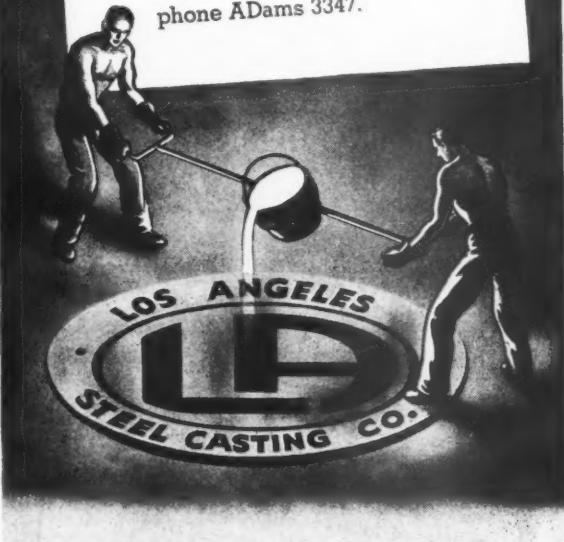
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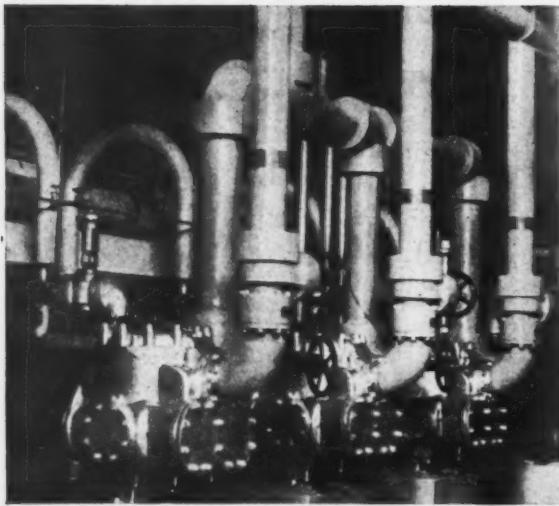


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THE WEST ON ITS WAY

UTAH

TRAFFIC CONTROL SYSTEM—The Union Pacific System, Omaha, Nebraska, has been granted preference ratings for materials for installation of centralized traffic control system to be installed in various counties in Utah. Estimated cost, \$833,046.

HEALTH CENTER—The War Production Board has approved construction of the \$86,000 health center and infirmary building to be erected on the University of Utah campus.

WASHINGTON

BRASS FOUNDRY—Everett Brass Foundry, Inc., Seattle, has been organized with \$50,000 capital.

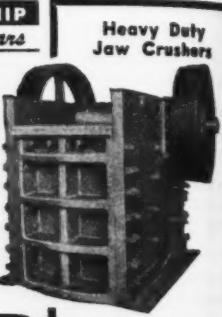
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WARREN & BAILEY CO., 350 SOUTH ANDERSON STREET, LOS ANGELES
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GENERATOR BUILDING—Berger Engineering Co. plans construction of an acetylene generator building at its plant, 3236 Sixteenth Avenue, S.W., Seattle.

PLANT FACILITIES—Bethlehem Steel Co. plans shed and storage facilities 18x120 feet at 2802 West Andover Street, Seattle; contract to Isaacson Iron Works.

TRANSPORTATION FACILITIES—Transportation Commission of Seattle has received authorization from DPC for an increase of \$600,000 in contract to provide additional transportation facilities making overall commitment \$1,150,000.

AMMUNITION DEPOT—At Bangor on the Hood Canal will be the site of a new ammunition depot and shipping area. The announcement told of a rail spur and other facilities for the ammunition depot, included in \$18,700,000 worth of Navy-approved construction in the Puget Sound area.

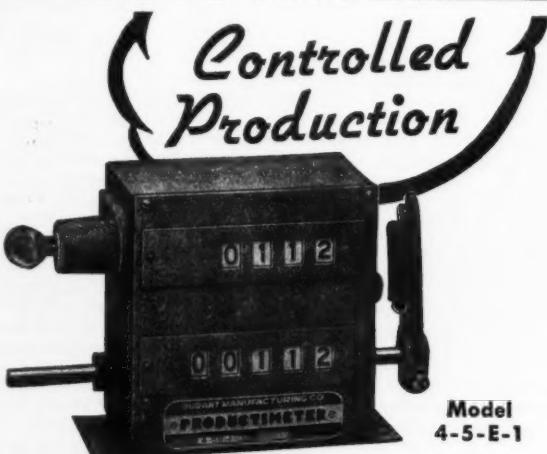
CAFETERIA—Goerig, Philip & Strand, Seattle, were awarded \$957,360 contract by Boeing Airplane Co. for building work at the Renton plant where the B-29 Super-fortress is now being produced. Work includes construction of a large cafeteria building to seat approximately 1,100 persons, a large equipment building and an addition to the personnel building.

ICE PLANTS—The Ice Delivery Company will open two new \$35,000 ice plants at Aberdeen and Westport. Equipment priorities have been cleared by the War Production Board.

TUG AND BARGE MOORAGE—General Construction Co., Seattle, Wash., awarded contract by the U. S. District Engineer Office at \$34,250 for construction of tug and barge moorage at the Seattle port of embarkation.

WYOMING

ADDITIONAL BUILDINGS—Peter Kiewit Sons Co., Omaha National Bank building, Omaha, Neb., awarded contract by the Defense Plant Corp., to be operated by the Monolith Portland Midwest Co. for the construction of two additional buildings for the alumina plant in Laramie, Wyo. Estimated total cost, \$3,800,000.



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CLARENCE FRAZIER
years successful experience in industrial and business management, will have his headquarters in Los Angeles. Another branch of the division is located in Fresno, California.

Albert N. Schweitzer, 1045 Bryant Street, San Francisco, has been appointed Pacific Coast representative of the Holland Hitch Co. of Holland, Michigan. Mr. Schweitzer also represents the Electro-Mechano Co. of Wauwautosa, Wisconsin, in the West.

Kilsby & Graham announce the opening of San Francisco office at 1201 Russ Bldg., with Hoyt Jones as San Francisco manager. Mr. Jones brings to his new position in San Francisco an extensive background of training and experience in steel and metal working, oil producing and refining, as well as a specialized knowledge of the marine field. His metalworking experience dates back to 1923.

Production Engineering Co. of Berkeley, California, announce the association of H. A. S. Howarth with the company. Mr. Howarth was associated with Dr. Albert Kingsbury for 24 years. After leaving the Kingsbury Machine Works he formed his own company which he operated for a number of years.

Moore Machinery Company, San Francisco, California, has been appointed by the Hill Acme Company as sales representatives for hydraulic surface grinders throughout the northern half of California and the state of Nevada.

American Screw Products of Los Angeles, a division of the Deutsch Company, has announced that, effective May 15, 1944, its operations will be conducted under the firm name, "The Deutsch Company." According to company officials, the use of the trade name, American Screw Products, resulted in confusion with Eastern firms of similar names.

Great Falls Paper Co., Great Falls, Montana, has been appointed distributors in Montana for the Crosley Corporation.

Vickers, Inc., Detroit, announce the establishment at Beverly Hills, California, of a West Coast test and service center. The added facilities supplement the sales engineering organization that has been established in the Los Angeles area for many years.

U. S. Machine Corporation, Lebanon, Ind., has appointed Electrol Oil Burner Corp., Seattle, as distributor of Winkler Stockers for certain territories in that vicinity.

Paul L. Davies, president of Food Machinery Corporation, has announced the appointment of vice-president Clarence Frazier as manager of the Peerless Pump division of the firm. Mr. Frazier succeeds the late Vernon Edler. The new Peerless manager, who joined the corporation in 1941 as assistant to the president, after a number of

years successful experience in industrial and business management, will have his headquarters in Los Angeles. Another branch of the division is located in Fresno, California.

Link-Belt Company, Pacific Division, announce the opening of a sales office and warehouse in Spokane with Homer A. Garland in charge. The new address is South 151 Lincoln Street. Mr. Garland has been with the Link-Belt organization since 1922.

The Lincoln Electric Company, manufacturers of welding equipment, announce the appointment of G. L. Revell as district manager of the Portland, Oregon office, succeeding E. H. Weil, who is now a lieutenant in the Navy. Another transfer to the Portland office is J. W. Donnelly, a welding engineer, recently associated with Industrial Supply Company of Salt Lake City. Donnelly has had extensive experience in the industrial field and worked for a number of years as a trouble shooter and welding engineer at the Lincoln factory. Both G. L. Revell and J. E. Donnelly are acting as the welding consultants for the U. S. Maritime Commission in the Portland area.

W. F. Siemer, trained at the Columbus, Ohio aircraft heater school of Surface Combustion, is now working out of Surface Combustion's Los Angeles office.

A. O. Smith Corporation, Milwaukee, announce Pacific Metals Co., Ltd., as distributors in California, Nevada and Arizona for electrodes and welding equipment.

Frank E. Falk succeeds Reuben L. Perin as general sales manager of the Pacific Division for Continental Can Company with headquarters in San Francisco. Mr. Falk has been vice-president and general manager for Vincennes Packing Corp. since 1938.

Gotham Instrument Company has selected San Francisco as western service headquarters. With Walter J. Halpern as a general manager, the Company has established a repair factory for all types of dial and other instruments at 591 Mission Street.

Thomas J. Kehane has been appointed commercial vice-president in charge of the Pacific Coast activities of Worthington Pump and Machinery Corp., making his headquarters in San Francisco. He, likewise, will supervise the corporation's business in the territory served by its Salt Lake City district office. Mr. Kehane has been with Worthington 29 years.

Walter Kidde & Company, Belleville, N. J., announces the opening of a new sales and engineering office at 9507 Santa Monica boulevard, Beverly Hills, California. John M. Noble, who for the last four years has been manager of the Aviation Department at Kidde, has been appointed district manager in charge of the new West Coast office.



RAY LATHAM



RALPH LEWIS

Ray Latham, left, appointed Pacific Coast manager of distributor sales for the Fafnir Bearing Company. Mr. Latham has represented the Fafnir Bearings for 19 years on the Pacific Coast. The company carries warehouse stock at Seattle, Portland, San Francisco and Los Angeles. On the right, **Ralph A. Lewis**, who was appointed as sales manager has been announced by the Los Angeles Steel Casting Company. Mr. Lewis has a background of some twenty years experience in the foundry industry of Southern California and has been a member of the Los Angeles Steel Casting Company staff for the past 12 years. During this time he has served as a sales engineer, specializing in the application of steel castings to industries.

H. M. Holkestad, who recently resigned as district manager of the E. D. Bullard Company at Salt Lake City, Utah, is now associated with the sales department of Colorado Fuel and Iron Corporation. He is located temporarily at Pueblo, Colorado, but expects to headquartered at Salt Lake City, Utah.

Cannon Electric Development Company appoint new engineering representatives in Colorado and Utah; the Franklin Sales Company, Central Savings Bank in Denver and Mountain States Engineering Co., 215 W. Second in Salt Lake City.

Spencer & Morris, builders of materials handling systems, announce the appointment of D. R. Cooke, left below, industrial engineer, in the San Francisco office as assistant to William H. Ringe. As planning consultant in the Los Angeles plant for some years, Mr. Cooke has made a number of contributions toward the solution of material handling problems in various industries.

The Colby Steel and Engineering Company, Seattle, has extended the territory of J. S. Carswell for the sales and service of Colby Crane marine elevators and other products manufactured by the Colby Company to include California. Their representative, located at 417 Market Street, San Francisco, 5, EXbrook 1048, E. Harold Biddison, resident manager. Additional engineers for sales and service will be added to the San Francisco Staff as the work requires. For over 20 years Mr. Carswell has represented the Colby Company on the Atlantic seaboard.



D. R. COOKE



E. HAROLD BIDDISON

THE SHOWCASE

14

Electric Hoist—Now in production is a spur-gear type hoist which embodies several new features. Operates under extremely low-head conditions with hoist block which can be elevated almost to overhead track. Trolley is built in with hoist frame and permits adjustment for a wide range



of beam sizes. Each hoist equipped with electric motor brake. A new feature is an adjustable load brake which permits of adjustment from the outside without necessitating removal of housing. Main frame is of malleable iron to prevent breakage. Hoist may be mounted either parallel to, or at right angles to over-head track, thus permitting operation in any direction without unnecessary wear on drum. Design allows for quick balancing of hoist to any special load conditions and has a 5-safety factor. Ball bearings throughout. Is available with push-button or cable control in 500-750-1000-1200-1500 pound load capacities with heavier equipment now in preparation for production. Hoists of 500 to 1500 lb. capacities are carried in stock and three day deliveries can be made. Moffett Manufacturing Co., Oakland, Calif.

15

Metal Parts Cleaners—Special, small, all-purpose units of the "Simplex" lines of metal parts cleaners has been announced. Designed to meet the needs for the cleaning of high speed small parts and tool equipment, these units do a thorough job of washing away oil, chips, dirt, etc. The operation combines active soak with swishing action for positive removal of all foreign substances. Hot or cold solution may be used. The operator loads the tray with the parts to be cleaned, throws the switch and the "Simplex" does the rest. Sturdy-Bill Equipment Corporation, West Allis (Milwaukee), Wisconsin.

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July, 19

16

Hydraulic Vise—The new Reimuller "V" way vise meets the problems of mass production requirements as well as giving ultra performance on holding or handling material. The unit can be mounted vertically and used for a production press on small precision upsetting, heading, and other small operations requiring dies or tooling. The "V" way vise is portable in that it is equipped with flexible hydraulic hose which lends adaptability to use on other machines. Reimuller Bros. Company, Franklin Park, Ill.

17

Food Servicing—A narrow-aisle pick-up or dish-up factory hot meal serving unit developed to obtain still further utilization of the economy and portability of Aer-Void High Vacuum Insulated Hot Food, Soup and Coffee Carriers in decentralized group in-plant feeding of Industrial War Workers near their work, to save worker's time and give more time for relaxation. Capacity approximately 150 servings of a selection of food or 300 servings with only one hot dish. Easily cleaned and maintained, highly sanitary. Vacuum Can Company, Chicago, Illinois.

18

Calculator—An exclusive new "Handy Calculator" is now available to all workers with wood through a special wartime offer by the makers of the famous Greenlee line of registered tools for the craftsman; packed with valuable data, should fit any tool kit easily. Greenlee Tool Co., Rockford, Illinois.

19

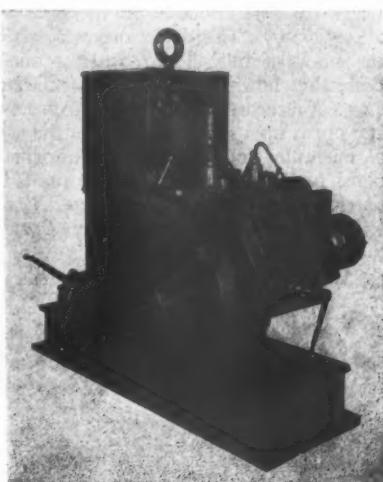
Hydraulic Test Machine—A new line which inspects all types of production hydraulic devices and components, and which fill, filter and check hydraulic systems has been announced. The line comprises various types and sizes, including stationary and portable models, driven by gasoline or electric motors. Greer Hydraulics, Inc., New York, N. Y.

20

Inspection Device—A fluorescent lighting device has been developed for inspecting fabrics in textile mills and potentially useful in similar inspection of other materials. Catalogued as the "T-1 Sylvania Inspection Fixture," the device replaces former unsatisfactory inspection methods as it solves the problems of heat, glare and the uneven, spotty light of incandescent lamps. The device is used for inspecting various types of cloth "in the gray" and is easily set up in a slanting position. *Sylvania Electric Products, Inc., San Francisco, California.*

21

Boring and Facing Machine—The GEM-CO boring and Facing Machine can be used as a stationary or portable machine tool and is particularly adaptable for performing facing operations on surfaces not usually accessible to standard machine tools. The machine is constructed chiefly



of welded steel, its design and mechanism is sturdy, powerful and dependable and its operation is simple. Workmanship and material are guaranteed against defects during a period of six months from date of shipment. *General Engineering & Manufacturing Company, St. Louis, Missouri.*



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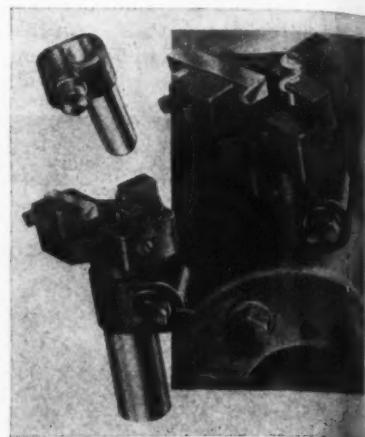
Utility Crane—The Hyster Karry Krane is a high speed self-propelling general utility crane with a capacity up to 10,000 pounds; has pneumatic tires, a big power plant, and operates over all kinds of rough and unimproved floor and road conditions. Its maneuverability—it turns in its own length—eliminates the need for use of a revolving boom crane. With a fast lift speed of 35 feet per minute and because loads can be hoisted or lowered while traveling, with four speeds, forward and reverse, the Karry Krane meets the requirements of most materials handling problems. Willamette Hyster Company, Portland, Oregon.

Reader-Projector—A portable microfilm reader-enlarger, carried in a fitted case like a portable typewriter, is now available. It weighs only $8\frac{1}{2}$ pounds and measures $4'' \times 8\frac{1}{2}'' \times 9\frac{1}{2}''$. This device makes possible the study of microfilm records at one's desk, the showing of microfilm enlargements of records, charts, etc., before groups and opens up a great potential for the use of microfilm for effective sales presentations. No special accessories are needed. Catalogued as Model 119 Projector. Federal Manufacturing and Engineering Corp., Brooklyn, New York.

Magnesium Preheat Furnace—A new furnace designed for sheets and plates, 600 degrees Fahrenheit, with capacity for seven sheets of magnesium alloy, up to 4 feet wide, 12 feet long and $\frac{1}{4}$ inch thick. It is self-contained and mounted on four ball-bearing double casters for movement to the presses where the magnesium is to be hot formed. It provides for loading and unloading through seven double doors on either end. Electrically heated and equipped with three blowers on one shaft. At the furnace ends, jib booms with chain hoists handle the hot tray loads; for moving convenience, they fold back over the furnace to make the overall dimensions approximately 9 feet high, 9 feet wide and 17 feet long. *James H. Knapp Co., Los Angeles, California.*

Foot Control—The Nobur Foot Control unit for the use with Nobur burr-removing tools permits the operator to work more efficiently, faster and more carefully. Designed to eliminate operator fatigue and speed burring, it allows the operator to work in a position and at an angle most comfortable and convenient for him. Any drill press can be readily converted. *Nobur Manufacturing Company, Los Angeles, California.*

Tool Adapter—The new Boyar-Schultz Model H screw machine tool adapter doubles the capacity of screw machines. It is designed to permit the use of more than one size tool on any single size screw machine; is precision made throughout from the best obtainable tool steel, hardened and ground to assure correct fit. At present, the



tool is made in four sizes: $\frac{5}{8}''$ to $\frac{3}{4}''$ shot; $\frac{5}{8}''$ to $\frac{3}{4}''$ long; $5''$ to $1''$ and $\frac{3}{4}''$ to $1''$. Larger sizes will be available in near future. *Boyar-Schultz Corporation, Chicago, Illinois.*

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1456

Combustion Control—Through the use of many schematic photo-diagrams and drawings, a new catalog, "L&N Combustion Control, Type P," endeavors to show anyone interested in the efficient operation of an industrial power plant or small central station just what the new system of combustion control can do for them; how the system regulates fuel-feed and draft by a simple electrical balance; the regulation of the furnace pressure, etc. Catalog N-01P-163. *Leeds & Northrup, Philadelphia, Penn.*

1457

Tool Catalog—A new 30-page General Tool Catalog GT-175, in addition to an expanded line of standard tools available, features carbide form tools and "Semi-Standard" tools, has recently been issued. Two pages are devoted to flat form, dovetail, skiving, circular, radius forming and other type of form tools. *Carboloy Company, Inc., Detroit, Mich.*

1458

Light Duty Tapping Machine—An illustrated six page 4-color folder (bulletin LTM-44) gives a detailed description of this machine which has been specifically designed for precision tapping in production. Some of the outstanding features are the lead screw drive which produces more accurate threads; the locating of the drive at the base of the lead screw to prevent "wind-up"; three sturdy guide rods, and the hand set multiple disc friction clutch drive for smooth operation. *Detroit Tap & Tool Company, Detroit, Michigan.*

1459

Sanitation Suggestions—A special 4-page Service Report has been issued describing precautionary measures that have helped many plants extend solution life and minimize dermatitis infection. The report stresses the need for thoroughly cleaning out main supply tanks, individual tanks on machines, lines, pumps, etc., to remove bacteria-harboring films or accumulations. *Oakite Products, Inc., Los Angeles, Calif.*

1460

Liquid Screens—Eight page, illustrated Book No. 1977 on Liquid Vibrating Screens gives construction details, dimensions and weights of the various sizes of screens available for recovering waste products and effectively reducing pollution; Also numerous photographs of actual installations. *Link-Belt Company, San Francisco, Calif.*

1461

Anti-Friction Compound—A new circular just released describing the Motor-Mica Anti-Friction Compound which eliminates hot bearings and other lubricating problems thus saving vital time and costly repairs. *Scientific Lubricants Co., Chicago, Illinois.*

1462

Repair of Dies and Tool Steel—An interesting 72-page booklet pictorially shows how to repair dies and tool steel with Eureka Electrodes. Approximately 250 illustrations with a minimum of text make it easy to know where and how to apply water-hardening, oil-hardening, air-hardening, or hot-working electrodes; to understand heat treatment recommended; and how to prepare and weld dies and other tool steels. *The Victor Equipment Company, San Francisco and Los Angeles.*

1463

Grommets—An interesting bulletin on a new type grommet offers design and production engineers complete information on models available, specifications, applications and exclusive features. *Arens Controls, Inc., Chicago, Illinois.*

1464

Tap Extractor—New literature about the Walton Tap Extractors emphasizes the simplicity of operation, free repair service, and the immediate shipment of orders. *The Walton Company, Hartford, Conn.*



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Portable Electric Drill—A deluxe brochure has just been released that covers the history, development, features and specifications of the recently introduced Thor Plastic-Housed Portable Electric Drill. Specific facts of the advantages of this new tool are presented. The booklet is a colorful and interesting exposition of the growing application in the use of plastics for many industrial purposes. It also contains factual data that answers any questions about the stamina of the recently introduced tool which may arise because of its revolutionary application of plastic. *Independent Pneumatic Tool Company, Chicago, Ill.*

Laboratory and Switchboard Connectors—Twelve-page booklet contains information, photographs, drawings and data on Cannon Laboratory and Switchboard Connectors and Experimental Switchboards. Catalogued are surface and sub-mounting plugs and receptacles, straight cord plugs and receptacles, switching plugs and experimental switchboards. *Cannon Electric Development Company, Los Angeles, California.*

Index of AAF Plane Parts—The "Index of Aeronautical Equipment," recently completed by the AAF Materiel Command, is a comprehensive catalogue of military aviation. The "Index" provides concise information on virtually every item of equipment used in AAF planes. Copies are available to approved individuals and corporations. *AAF Materiel Command, Production Division, Los Angeles, California.*

Industrial Rubber Clothing—A recently introduced line of industrial clothing coated with rubber or rubber-like materials appears in a catalog section now available upon request. Description in detail is given of the design and construction of B. F. Goodrich brand clothing including the fire coat, general purpose work coat, double back industrial coat and standard police coat. *B. F. Goodrich Company, Akron, Ohio*

Spring-Lock Fastener—A 36-page catalog gives technical data on Esna's new spring-lock fastener, also gives complete specifications, sizes available and detailed tests. Thousands of tests, both by the company's own laboratories and by independent research units, proved that the lock meets the fullest requirements. It has been accepted for use on production of aircraft and for maintenance by the U. S. Army Air Forces, by the U. S. Navy Bureau of Aeronautics, by the Department of National Defense for Air for the Dominion of Canada, and by the Civil Aeronautics Administration for the U. S. Department of Commerce. The spring-lock fastener is composed of two parts, both of them installed permanently on the fixed part as well as the removable part of the cowling or other assembly, thus avoiding any possible chance of losing either part. Designed for Quick-Acting Fastener need on high-speed airplane cowling, it also offers wide range of other uses. *Elastic Stop Nut Corporation, Union, N.J.*

Automotive Maintenance—An interesting bulletin, "Scientific Cleaning through pH Control" has been prepared telling of the many ways in which Kelite materials and methods can solve the cleaning problem and speed up your maintenance work. *Kelite, Los Angeles, California.*

Hydraulic Dredge—A new catalog is now available (JHA-5) giving complete factual details of the Hendy Modern Hydraulic Suction Dredges. *Joshua Hendy Iron Works, Sunnyvale, California.*

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